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An indication of the importance which is now attached in Europe to recent industrial developments in the United States can be found in our personal columns, which have recently recorded the presence here of a number of foreign manufacturers who are visiting our industrial centers. These gentlemen are evidently anxious to find out for themselves where the secret of our rapid advance lies. They are studying our methods and will doubtless be ready to profit to some extent by what they learn here. We need not be afraid, however, to show them all they want to see; for there are many points of advantage which they cannot carry away with them, and without which the others will not produce our results.

The exposition which the Colony of Western Australia proposes to open at Coolgardie in March next seems to offer an excellent opportunity to our manufacturers of mining machinery to cultivate trade. Mining is by far the most important interest in the colony, and the exposition is to be held in the center of the mining districts, where it will be accessible to the active managers and engineers. While other machinery and products will be exhibited, mining machinery and appliances will be the main feature and that which will attract most attention. Many Australians are disposed to favor American practice, and we should do all in our power to cultivate this disposition. Some account of the proposed exposition will be found in another column.

The late Eugene Field was so pre-eminently a man of universal sympathies, that it seems quite appropriate that all classes of workers should be asked to help in providing a memorial to him. The committee in charge of this work informs us that only a comparatively small amount is still needed to complete this memorial, which is to take the form of a simple monument and a modest provision for his family. The fund is made up of subscriptions of $1, for which each subscriber receives "Field Flowers," a volume of his poems; and these can be obtained from most book stores or from the committee in Chicago, at 180 Monroe Street.

A worker himself always, Eugene Field's memory appeals specially to the workers of all classes for whom and for whose children he wrote so well.

In view of the rapid increase in our slate exports within the past two years, a little more attention might be paid to the classification of those exports by the Bureau of Statistics. At present all the slate sent abroad is given as "roofing slate," though the shipments include a considerable quantity of manufactured stock, such as slabs, table-beds, etc., besides roofing slates. A great deal of interest in the exports is felt by the trade generally, and the Custom House figures constitute the only reliable information to be had on the subject.

The foreign trade in slate is steadily growing, notwithstanding the opposition made by the quarry-owners in Great Britain especially. The shipments abroad have come in very opportunely, and have helped the industry through a critical period. We understand that this trade will be pushed, and strong efforts will be made not only to maintain, but also to increase it.

The Carnegie Steel Company, in pursuance of its policy of independence, is strengthening its position by not only acquiring the right to use newly patented inventions and improvements in iron and steel manufacture, but also by controlling those inventions wherever possible. We have heretofore ("Engineering and Mining Journal," September 10th, 1898) referred to its control of the Jones mixer patent, which is now in litigation. The company, as is well known, controls the patents on the Uehling pig iron casting machine, the introduction of which marked an important step in advance in blast furnace economy. We are informed that the company is now negotiating also for the purchase of the patents covering the Laughlin pig iron casting and conveying apparatus, which is in some quarters held to be an improvement on the Uehling device. The control of these patents may be of great importance in the future.

Not long ago the report went the rounds of the press that the Oliver Iron Mining Company of Minnesota was going to dry its ore before shipment, the practice promising certain advantages, such as saving in cost of transportation, etc. Inquiry as to the truth of this report brought a reply from the officers of the company that it had indeed made some experiments along this line, but the apparatus employed was not such as to give any definite information of value as to the economy of the practice. This is another illustration of the care with which reports in the daily press, and even in the trade papers, must be accepted.

There is no question that iron ores can be readily dried, and obviously there would be a saving in cost of transportation for every pound of hygroscopic or combined moisture eliminated. In adopting such a plan the important features to determine are how much water should be allowed to remain to insure coherence and consequently to avoid loss

in dust; and whether the amount of moisture expelled would justify the expense of expelling it. So far there is not, as far as we are aware, any reliable data bearing upon these questions.

We are rather surprised to see that some of our contemporaries have been commenting on the career of the late John W. Keely with entirely too much caution. To us the extraordinary success of the so-called inventor is only a proof of the power which persistent imposture exercises with a great many people. If Keely had really, as he claimed, discovered a new force, scientific men generally would have been perfectly willing to recognize his discovery and to accord him the fullest credit. The talk of "scientific jealousy" in which he and his supporters indulged was the merest nonsense, and was only intended for the special class of half-educated and wholly unscientific people, among whom Keely found his chief support. Very few real inventors have been fortunate enough to secure the assistance and pecuniary backing which he received; and it is unfortunate that so much money and sympathy should have been wholly wasted. The fact is that he never willingly submitted his alleged discovery to really expert investigation; and nothing has been lost to the world by his death with his wonderful secret unrevealed. The whole case was only another instance of the credulity and belief in the unknown which enables so many inventors of "secret" metallurgical processes to keep afloat. The Keely motor gave Mr. Keely a comfortable living and a good deal of notoriety, which was probably its real purpose. To soften the facts or palliate the imposture because the man is dead does harm, not good.

THE RAILROADS AND THE WEST VIRGINIA COAL TRADE.

The coal operators of the New River District in West Virginia, who ship their product over the Chesapeake & Ohio Railroad, have for some time been agitating for lower rates and for concessions of various kinds from the road. They have also been somewhat disturbed by competition among themselves, and by consequent lack of united action on matters pertaining to the trade. Recently, in order to put their business on a better footing, the operators, with we believe one exception only, organized a concern known as the New River Consolidated Coal Company. This corporation or association is nominally intended to act as a central selling agency, independent of the railroad company, and to make the operators independent in marketing the coal of the transportation line, as far as they possibly can be. We have said "nominally intended," since there are some who are convinced that the New River Consolidated Company can and probably will be manipulated so as to put the Chesapeake & Ohio Railroad more fully in control of the trade than ever, while its hand is cunningly concealed, at least for the time being.

The telegraphic dispatches in the daily papers have referred to a complaint against the Chesapeake & Ohio Railroad Company for discriminating in rates, the hearing on which was begun before the Inter-State Commerce Commission in Washington on Tuesday of this week. The complaint in this case was brought by C. G. Blake, who is a coal and coke agent in Cincinnati, and is interested in a mine on Dun Loup Creek, in the New River District, W. Va., and a mine in the Kanawha District, and who was, for several years, the confidential disposer of coal and coke in the western market, under special arrangements with the railway company, in which position he probably learned all the tricks in the trade. He was an applicant for the western agency of the New River Consolidated Coal Company, but was turned down in favor of Donald MacDonald, who occupies a similar position with the railway company at present, and who received the appointment. Upon this Mr. Blake charged the company with discrimination in rates, car supply, etc., and with hauling coal and coke for certain concerns at less than their published rates; and these charges he is now trying to maintain before the Inter-State Commerce Commission. We have no doubt that he can establish every charge, but the chances are that he will be bought off by concessions in favor of the mines in which he is interested. It is probable that the West Virginia Legislature, which assembles in January next, may take a hand in the matter, in which event President Ingalls, of the Chesapeake & Ohio, may meet with some interesting developments, as the Legislature is apt to be a good deal in earnest, and the company is not popular.

The fact is that in this case, as in many others of the kind, in view of the very active competition existing in the Western coal trade, the operators and transportation lines must work harmoniously together, or lose trade, precisely for the same reasons which render it necessary for the operators and miners to agree. The very serious question has presented itself, however, as to whether the operators along the Chesapeake & Ohio are getting their fair share of the market price, and whether they will not be absolutely destroyed and ground out of existence if the present system is allowed to continue.

It is true that the same tendencies and conditions exist in almost every other coal district; and the conflict between operators and transportation lines is a perennial one. The Chesapeake & Ohio Company is burdened with a very heavy debt, the interest on which is earned with a very narrow margin, so that it may be a trifle more grasping than some other lines. On the other hand, its managers probably realize the importance of the coal trade, and while they are anxious to make all they can out of it, must understand that there are limits they cannot pass.

COPPER PRICES.

We have had some complaints of our recent market quotations of copper, and as we appreciate very greatly the responsibility which rests on us because so many contracts for the sale or purchase of copper in ore or other form are based on the quotations of the "Engineering and Mining Journal," and it is always our desire to justify fully the confidence reposed in us.

We have very carefully investigated the complaints that have been made, and, as several of the large houses in the trade favor us by permitting us to examine their books and satisfy ourselves as to the actual basis of transactions, we can claim to speak not only with absolute disinterestedness, but also with a knowledge of the facts.

Some of our critics have claimed that our quotation of Lake copper at 13 cents has been too high. We know that actual sales have been made at that price; though 12.90 cents would be a more common basis for business, while some has been done even below 12.90 cents per pound within the week ending November 26th. It is well known that Lake copper is very closely held, and for special purposes an abnormal price can sometimes be obtained. Lake copper in ingots for brass manufacture brings usually a notably higher price than Lake in wirebars; in fact, for wire, and especially for the export trade, Lake wirebars will not command any higher price than electrolytic wirebars. Many foreign buyers even prefer electrolytic at the same price.

We quoted electrolytic cakes, wirebars and ingots at 12.55 to 12.60 cents per pound, and we know of quite important business having been done during the week ending November 26th at 12.60 and even below this, but some business had also been done at 12.65, and more than this was asked. Our figure of 12.60 cents was certainly justified, though the alternative figure might have been above or below this, according as the atmosphere led to a more or less sanguine mood.

Cathodes were quoted by us at 12.40 to 12.45 cents, because a difference of 0.15 cent between them and electrolytic is certainly not excessive; but on Friday, November 25th, after we had gone to press, a sale was actually made at 12.65 cents for cathodes; but we cannot help looking on this as exceptional and as too high for a fair average quotation for cathodes, even for that day; nevertheless, had that sale come to our knowledge before our paper had gone to press it would have been cited, and it would have raised our quotations, though not to its level, for it was the highest price paid during the week; while there were other transactions at lower prices.

It is not always easy to get a fair average where actual transactions have taken place at widely different figures, and where the conditions of the sale, whether spot cash or 30 days, or other conditions of delivery, freights, quality, etc., are not all known; but our efforts are always to quote the prices at which business has been actually done and can be done, leaving as little as possible to the imagination, the hopes or fears of interested parties.

A REGISTER OF CALIFORNIA MINES.

The reports of the State Mineralogist of California have heretofore given a great deal of information about the mines of the State, which is nowhere else accessible. They constitute in this way valuable works of reference, which are appreciated by those who have occasion to use them.

In preparing his report for the present year, Mr. A. S. Cooper, the present State Mineralogist, has adopted a new plan, which will, he thinks, make the information about individual mines still more accessible, and permit its wider circulation. This plan consists in tabulating the information by counties, giving for each mine and mill the essential points necessary for a prompt estimation of its importance and standing. The register or sheet containing the tables will be accompanied by a map of the county.

The method adopted is to fill out prepared blanks from the information in the possession of the Bureau, and then forward them to the local agents, who are expected to make all necessary corrections and additions to bring the information up to date. This, of course, requires the co-operation of the mine-owners, and this has been very generally secured. Only in a very few cases has information been withheld from the representatives of the Bureau.

It is not, of course, the intention to estimate the value of the mines,

to guarantee or expert them in any way; but simply to give their record in condensed form. The maps prepared are on a scale large enough (1 in.=2 miles) to show all the mineral locations.

We have before us an advance proof of the register for Nevada County. This gives the location of each mine and mill; the number, width, strike and dip of veins; character of ore, hanging and foot walls; development work done; mill, power and number of men employed; names of owner and manager. For the mills there are recorded separately the location; character of mill; number and weight of stamps, if a stamp mill; kind of concentrators used, if any; cyanide and chlorination plants, if in use.

The value of such a register will be generally appreciated. Under the arrangements made these county sheets will be issued separately, as in this way they can be more widely distributed and the Bureau will be able to supply a greater number of applicants than if each were to receive the register for the entire State.

We regret to learn that under the late State administration the work of the Mineralogist has been seriously delayed. The State printing office has been closed and no work could be done for the State Mineralogist. The Nevada County sheet, to which we have referred above, is being printed by Mr. Cooper at his individual expense. Under the new administration, however, it is expected that this short-sighted policy will be changed, and the other county registers will be brought out with little delay. We may add that economy as well as convenience will be served by the tabular form of the register.

NEW PUBLICATIONS.

"English-German-Spanish-French Dictionary of the Terms Employed in Mining, Metallurgy and Chemistry, with the Respective Auxiliary Sciences." Vol. II. By Max Venator. Leipzig: A. Twietmeyer.

This is an arrangement of technical words, especially those referred to in the title, in four parallel columns. It will surely be very useful to those who have to make technical translations from English into German, Spanish or French. So far as we are able to observe from a cursory examination, the dictionary appears to be rather complete, and we have only come across a few unimportant errors. However, the real value of such a work as this can only be determined by practical use.

"Report of the Societa Italiana per le Strade Ferrate del Mediterraneo; Servizio delle Construzioni; Relazione sugli Studi e Lavori Eseguiti, dal 1885 al 1897." Folio, 142 pages, with album of 71 plates.

The engineers who prepared this fine report evidently had a scientific interest in presenting something more than the mere dry details of railroad construction. The atlas of sections, diagrams, etc., which accompanies the report, shows how carefully the Italian engineers have worked out the problems of topography and construction on the main trunk lines and branches of their railway system. Altogether, it is a model report, on a plan which ought to be, but is not, followed by American railroad engineers. The cost of publishing such a report is comparatively small, as the sections and other drawings have to be made in any case.

The plates in this case, with the accompanying descriptions, include bridges, tunnels and other heavy construction works. The drawings are very handsomely executed. The solidity of the works is to be noted; two stone arch viaducts especially remind one of the old Roman constructions.

"Proceedings of the Fifth Annual Meeting of the Society for the Promotion of Engineering Education, Toronto, August 6th-18th, 1897." Vol. V., edited by J. B. Johnson, C. F. Allen and A. Kingsbury. Published by the Society, 1898. Pages, 340. Price, $2.50.

This volume is a fitting record of the Toronto meeting, held last year, of the Society for the Promotion of Engineering Education, and it is wholly in keeping with the general motive of the society and the meeting that the book should have as a frontispiece a picture of Prof. De Volson Wood, the well-known mechanical engineer and instructor in mathematical drawing. The report contains a list of officers, committees, council, members, past officers, constitution, rules and proceedings of the Toronto meeting. At this meeting reports of the various committees were presented, and the principal feature was the able address of President Henry T. Eddy on "Engineering Education," in which strong ground is taken for technical instruction, the author, however, giving full weight to such shop and laboratory training as is available in the technical schools. Prof. R. C. Carpenter, professor of experimental engineering at Cornell University, contributes a paper on "Engineering Laboratory Courses;" Prof. E. B. Owes, professor of electrical and steam engineering in the University of Nebraska, adds a monograph on "A Course of Study in Electrical Engineering," which is supplemented by the essay on "Electrical Engineering Symbols," by Prof. D. C. Jackson of the University of Wisconsin. Other papers printed in this report are by Prof. Marx, "At What Point Should Students Engage in Scientific Research;" "Uniformity of Symbols," by the special committee; "Electrical Engineering Symbols," by Prof. D. C. Jackson; "Mechanical Engineering Symbols," by Wm. Kent; "Symbols for Statics, Dynamics, Strength and Elasticity of Materials, Hydraulics and Thermodynamics, Masonry and Surveying," by Prof. J. Galbraith; "Symbols for Strength of Materials, Etc.," by Prof. J. B. Johnson, and a number of other interesting papers by distinguished engineers, together with the discussion on them evolved at the meeting.

"Lectures on Explosives." A course of lectures prepared especially as a manual and guide in the laboratory of the United States Artillery School. By Willoughby Walke. Second edition. New York; John Wiley & Sons. Pages, 436; price $4.

Professor Walke's series of lectures, now in a revised and newly edited form, are applicable to the uses of the mining and civil engineer as well as to military work. All that is said as to the chemical composition, the principles of thermo-chemistry, the manufacture, the composition and the handling of explosives, applies quite as well to the usage of the civil and mining engineer as to the torpedo expert. The lectures from Nos. iv. to viii., inclusive, on gunpowder, are more strictly devoted to military powders. Lecture ix. begins with the chlorate class of explosives; lecture x. treats of the nitro-substitution class; lecture xi. discusses the nitric derivative class (guncotton, etc.); lecture xii., the manufacture of guncotton; xiii., the service tests for guncotton; xiv., the nitric ethers (nitro-glycerine, etc.); xv., guncotton, blasting powders and dynamite (giant powder); xvi., smokeless powders (chemical compounds, with mixtures); xvii., explosives of special classes (like rackarock, heilhoffite, oxinite, panclastite, romite, etc.); xviii., chemical constitution of the fulminates; xix., manipulation and transformation of high explosives; xx., application of high explosives to military purposes; xxi., the use of high explosives in shell; xxii., explosion by influence, or sympathetic explosion.

The foregoing outline of chapters sufficiently indicates the character of the book. It is meant primarily for military students of the artillery and torpedo schools; but very much of it is serviceable to the manufacturing chemist and mining engineer.

For the benefit of engineers who may wish to follow up this line of study, the following list of books, which will supplement Prof. Walke's work, are recommended: "Blasting and Quarrying," by J. Burgogne; "Blasting," by O. Guttmann; "Blasting in Mines, Quarries, Tunnels, Etc.," by A. W. and Z. W. Daw; "Explosives and Their Powers," by M. Berthelot; "Explosives and Explosive Compounds," by M. Berthelot; "Modern High Explosives," by M. Eissler; "Nitro-Explosives," by P. G. Sanford; "Rock Blasting," by G. G. Andre; "Tunneling," by H. S. Drinker. These books, together with Prof. Walke's excellent series of lectures, will convey about all the information needed by the engineer and will also assist the manufacturing chemist.

BOOKS RECEIVED.

In sending books for notice, will publishers, for their own sake and for that of book buyers, give the retail price? These notices do not supercede review on another page of the Journal.

"Commercial Movement in the Kingdom of Italy for the Year 1897." Rome, Italy; issued by the Ministry of Finance. Volumes I. and II.; pages 472 and 496.

"Cuba and Porto Rico, with Other Islands of the West Indies." By Robert T. Hill. New York, 1898; published by The Century Company. Pages, 429; illustrated. Price, $3.

"Traite Theorique et Pratique des Moteurs a Gaz et a Petrole et des Voitures Automobiles." Par Aime Witz. Volume III. Paris, France, 1899; E. Bernard et Cie. Pages, 600; illustrated.

"Commercial Relations of the United States with Foreign Countries During the Years 1896 and 1897." In two volumes. Volume II. Washington, D. C.; Government Printing Office. Pages, 1,050.

"Annual Report of the Register of the Treasury to the Secretary of the Treasury for the Fiscal Year Ended June 30th, 1898." Washington, D. C.; Government Printing Office. Pamphlet. Pages, 14.

"Preliminary Report of an Investigation of Rivers and Deep Ground Waters of Ohio as Sources of Public Water Supplies, 1897-98." By the State Board of Health. Cleveland, O.; State Printers. Pages, 259, with map and diagrams.

CORRESPONDENCE.

We invite correspondence upon matters of interest to the industries of mining and metallurgy Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.

Letters should be addressed to the MANAGING EDITOR.

We do not hold ourselves responsible for the opinions expressed by correspondents.

Cyanide Poisoning.

Sir: I was much interested in an article from the pen of John Longmaid published in your issue of September 24th on "Cyanide Poisoning." When one realizes the huge amount of cyanide that is used on the Rand here it is a matter of wonder that we have so few cases of poisoning. Formerly the cyanide tanks were under cover, with very imperfect ventilation, and in consequence the danger from the deadly hydro-cyanic acid fumes was much greater than it is at present, for we build the tanks in the open air now, and there is no danger. Not long ago, however, we had a very narrow escape in our works, and possibly it might interest some of your readers to record it. It was clean-up day in the works; all the zincy slimes had been thrown into the acid tank, about 7 ft. high and 5½ ft. in diameter. The sulphuric acid was thrown on rather rapidly, and an intense action commenced. It became more and more violent, and the two men who were on shift drew back the sacking which surrounded the tank and a small cupola on top to take a peep in. One of them fell, as if dead, while the other just managed to fall down the steps and give the alarm. Two negroes were also "knocked out." At first it seemed as if the shiftman was done for, but after much rubbing and wetting he opened his eyes and wanted to know what the matter was. None of the men who were poisoned by the gas suffered any after-effects, so I concluded it was due to hydro-cyanic gas. We have no arsenic that I know of in

our ore, or in the zinc. I will soon make a careful determination, to be sure. To my mind the cause of the trouble is that insoluble cyanide salts (mostly cyanide of zinc) get mixed up with the slimes and are never thoroughly washed out. When acid is poured on, naturally the objectionable gas is formed. I recommended the cyanide manager to have on hand some respirators. We have them now, and whenever a man goes up to the tub he puts on a respirator, in which there is a piece of cotton soaked in H_2O_2. If any one is "knocked out" he soon comes to if subcutaneous injections of H_2O_2 are applied. What a marvelous thing it is that the deadliest poison, HCN, is changed into a harmless compound by the hydrogen peroxide. I never cease to wonder at it. Most of your readers probably know the formula of the reaction, namely,

$$2\,HCN + H_2O_2 = \begin{matrix} CONH_2 \\ | \\ CONH_2 \end{matrix}$$

The formula on the right is that of oxamide, a perfectly harmless compound.

In order to hasten the action of the sulphuric acid and zinc we pump in a little air, now, and find that it helps a great deal. I trust these remarks will prove of interest to some.

T. Lane Carter,
Assayer Crown Deep, Limited.

Johannesburg, S. A. R., Oct. 30, 1898.

The Boston & Montana Case.

Sir: The dispatches announce to-day the decision of the Montana Supreme Court in the suit brought to enjoin the Boston & Montana from transferring all of its property to a new company organized in New York. The decision is that a company cannot transfer all of its property without the consent of all of its stockholders. The transfer is therefore enjoined.

It is gratifying to note that minority stockholders have rights. The legal proceedings and the large legal fees paid by the company could have been saved, as the Montana law distinctly states that not all of the properties owned by a company can be disposed of; but there is a remedy, as the company can sell almost all of its property with the exception of a small parcel.

COAL IN KANSAS.

From the third volume of the series issued by the University Geological Survey of Kansas we take a brief summary of facts relating to the coal-fields of the State. The area covered by the coal measures in Kansas is 20,000 square miles, of which 15,000 are productive of coal. Twenty-nine counties in eastern and southeastern Kansas and six counties in the west central portion of the State are coal producing. Two-thirds of the total coal output comes from an area of 840 square miles in the southeastern corner of the State, in Cherokee, Crawford and Labette counties. Here is found the heaviest coal seam in the State, the Weir-Pittsburg coal, which is 40 ins. in thickness. This seam is found over an elliptical area 10 miles in width.

In the same area are found other valuable seams of coal mined at Columbus, Fort Scott and other places. As far north as Leavenworth, at a depth of 720 ft., coal seams are found with an aggregate thickness of over 7 ft. If the same amount of coal should be found at all points equidistant from the Pittsburg coal area, with Leavenworth, there would be an area of over 12,000 square miles with 7 ft. of coal. The records of the deep wells indicate this area is underlaid with at least 1 per cent. of this amount.

Coal mining first commenced in the Cherokee County region in the fifties, and the first railroad mines were opened in 1870. In 1871 the Keith & Rawlings Company began operations and greatly aided the development of this rich area. In 1886 the Santa Fe Coal Company was organized—which is now the Mount Carmel Coal Mining Company, one of the largest coal companies in the West. During the year 1897 Cherokee and Crawford counties produced 2,652,029 tons of coal, employing nearly 6,000 men. This output is 93.32 per cent. of that of the entire State. In 1859 Major Hawn organized the Leavenworth Coal Mining Company and a shaft 713 ft. deep was completed in 1870. In 1879 the Legislature authorized the officers of the State penitentiary to sink a shaft at Lansing, and coal was reached at 713 ft. in 1881. Besides the State mine there are now two companies mining coal in the Leavenworth area, the Leavenworth Company and the Home-Riverside Company; their total output in 1897 was 367,141 tons, employing 1,000 men. The State mines at Lansing produced 190,000 tons of this output.

The Osage coal was discovered in 1869 at Carbon Hill, near Carbondale, by a Mr. Dodds, in digging a well. In 1880 the Santa Fe Company entered the field and leased about 30,000 acres. This area is now controlled by the Mount Carmel Coal Mining Company, which controlled about 45½ per cent. of the output of Osage coal in 1897. The whole distance along the Santa Fe Railroad from Carbondale to Osage City is now one continuous mining area, and the amount of coal still remaining is many times as great as that which has been removed.

The long-wall system of mining is employed in the coal-fields of Leavenworth and Osage counties. Modern machinery to facilitate the mining and handling of coal is used in the Kansas mines and is carefully and completely described in this report. Also complete chemical analyses and physical tests are given for the various coals of the State. These show that the lower coals are the best, as they give the most heat and are more solid; but the upper or Osage coal is an excellent fuel coal. Kansas coals rank very favorably with eastern coals and the Weir-Pittsburg coal has the greatest heat capacity of any of the soft bituminous coals of the United States according to Government tests.

Only a small portion of the entire available coal area is now opened, and the mines are located where the seams are of greatest thickness and where the depth is not too great to increase the expense of mining. If the price of coal should advance a large number of new mines would be opened in areas where the cost of mining now hinders their development. There are now 16 prominent coal companies working in the Kansas coal-fields, besides a considerable number of small mines run very irregularly by private parties.

The highest and lowest prices paid for Kansas coal since 1889 are $2.18 and 97 cents. The principal consumers of Kansas coals in order of importance are, the railways, manufacturing plants, houses, gas works, and coking establishments.

The coal production of the State has steadily increased since 1880 and was greatest in 1897, with exception of 1894.

AN ELECTRIC POWER PLANT IN THE TRANSVAAL.

At the Sheba Mine in the Transvaal an electric power plant has recently been established from which power is transmitted five miles to the mill. When the mine was first operated ore was hauled to the mills by ox-wagons, but later an aerial tramway was put in. This reduced the cost of transporting and milling the ore from $7.80 a ton to $1.46. The establishment of the new mill and the use of electricity generated by water power have, it is claimed, reduced the cost to the very low figure of 40 cents a ton.

In a paper recently read on this installation before the Institution of Civil Engineers, in London, Mr. W. B. Esson said the water power is obtained by a dam across the Queen's River, two miles above the generating station, to which the water was conveyed partly in open race and partly in tunnel. The maximum head derived was 32 ft. The turbines were of the Victor horizontal type, driving a countershaft at 300 revolutions per minute by ropes, and were together capable of developing 396 H. P. They were provided with Snow governors, acting directly upon the turbine gate. The generating plant consisted of three alternating-current dynamos supplying current at 3,300 volts. Each generated two alternating currents having a phase difference of 90°, and was capable of giving an output of 150 electrical H. P. The armature was stationary and the field magnets rotated at a speed of 400 revolutions per minute. The stationary high-pressure coils were mounted on laminated iron sectors, which were laid close together in a strong cast iron cylindrical shell made in halves to form the armature. This was 54 in. in internal diameter by 12 in. wide, and within it the field-magnet rotated. Each coil was wound on a former, and had 63 turns of double cotton-covered wire 0.12 in. by 0.09 in. in seven layers. The adjacent layers are carefully insulated by micanite cloth, while the complete coil was boiled in paraffin, and was afterwards heavily covered with impregnated tape to a thickness of 1-16 in. In addition, during the process of mounting, a trough of fiber was interposed between the coil and the iron core. There were 14 coils on the armature, the seven upper coils being for one phase and the seven lower coils for the other; each therefore contributed about 470 volts to the circuit. The coils were displaced to give the phase-difference by the interposition of idle laminated sectors. The field magnet was excited by a single coil and consisted of a steel wheel, from the rim of which projected two series of poles, N on one side of the coil and S on the other. The poles were expanded on the face and were curved to form a circle of 16 alternate faces, which were presented to the armature core, with an air gap of 0.33 in. The exciting coil was wound on a cast iron drum placed in the middle, between the projecting poles, and was positively driven by a couple of pins screwed into the steel casting. It terminated in a pair of gun-metal rings lying side by side upon, and insulated from, a substantial cast-iron brush, which in turn was keyed upon the shaft. The exciters were ordinary two-pole upright machines. For throwing the alternators into parallel the incoming alternator was plugged on to the synchronizing bars, and when approximate synchronism was indicated by the hot-wire voltmeters it was thrown into the main circuit by closing, through a large choking coil, a path between the synchronizing bars and the main omnibus bars. The choking-coil prevented a large rush of current, due to difference of phase, between the alternators, though at the same time allowing sufficient current to pass to pull the new machine into step. The current was transmitted by cables to the mine, and at the receiving-house the pressure was reduced to 100 volts for driving motors and lighting the workings. The frequency at which the plant worked was 53.3 per second. The conductors were laid underground, and consisted of concentric cables insulated with impregnated jute covered with lead and armored. There was no fall of potential due to self-induction in the cables, nor had the current in one pair of conductors any inductive effect on the neighboring pair. But when overhead wires were employed, the conductors, being of necessity some distance apart, there was not only a fall of potential due to self-induction in the lines, but, unless precautions were taken, the mutual induction of the circuits carrying currents of a quarter-phase displacement tended to produce inductive dissymmetry throughout the system. At the receiving-house there were four transformers of 50 k.w. capacity, two for each phase; those reduced the pressure from 3,000 volts to 100 volts. The motors were of the induction type; their construction was fully described, and the author also explained their working under varying conditions, and gave a brief account of the laws which governed their action.

The crushing mill at Sheba worked night and day; and in one year, of the possible 365 days of 24 hours each, the pressure had been cut off the conductors for only 4 days 8 hours 22 minutes, which had been chiefly occupied in inspecting the water race, overhauling the belts, ropes, etc., and in executing general repairs to the machinery. The efficiency of the plant from the turbine shafts at the generating station to the motor shafts at the mine, might be taken as 70 per cent.

CANNEL COAL IN TASMANIA.—A discovery of cannel coal has been made near Mole Creek, Barn Bluff, Tasmania. Specimens have been sent to the Tasmanian Museum, Hobart Town. Practical tests that have been made bear out the position assigned to the coal by analysis, showing it to be better for gas manufacture than the average English.

COPPER SMELTING IN WALES.

Written for the Engineering and Mining Journal by W. Terrill.

The Welsh method of copper smelting, as carried out about the middle of this century, is fully and accurately described in Percy's "Metallurgy of Copper." Percy took the minimum of distinct operations appertaining to the Welsh method as six in number, and his classification has been generally adopted by writers on the subject since. The modern practice can still be most conveniently studied by reference to the same classification.

These six operations may be briefly described as follows:

1. Calcination of the ore. The term "calcination" is invariably used by the Welsh smelter for a process of oxidation by heating in air without fusion, and the term "roasting" is restricted to a process of oxidation during fusion. Calcination is performed only on ores rich in sulphur in order to reduce the sulphur contents before melting into matte.

2. Melting of the calcined ore in admixture with raw ore, the slags from the next melting operation, and any flux that may be required. The product matte, containing about 30 per cent. copper, is known as coarse metal, and was formerly tapped into a pit of water to granulate it, but this method of effecting subdivision is now quite superseded by crushing. The product slag contains from 0.5 to 1.0 per cent. copper and is discarded.

3. Calcination of the coarse metal. Rich sulphuretted ores begin their treatment at this stage, and may be calcined alone or mixed with the coarse metal.

4. Melting for fine metal. The charge consists of calcined coarse metal, or calcined rich ore, or both, in admixture with cobbing; that is to say, the debris derived from old furnace bottoms and portions of the lining removed for repairs, broken up small by hand. These debris are always largely impregnated with copper, which is here returned to the state of matte. At the same time they furnish silica to scorify the oxide of iron produced by calcination. Rich oxidized silicious ores are also added at this stage, together with the slags derived from subsequent meltings. The product fine metal contains from 60 to 75 per cent. copper, depending upon the proportion of oxidized products added to the charge, and is known by the several terms, blue metal (about 60 per cent. copper), white metal (70 per cent. copper) and pimple metal (75 per cent. copper, or more). The product slag contains about 5 per cent. copper, and is returned to the second operation.

5. Roasting. The fine metal is charged in large lumps and slowly melted in a current of air. Some oxide of copper is thus formed and the well known reaction between oxide and sulphide takes place in the molten bath whereby metallic copper and sulphur dioxide are formed. An ebullition is set up by the escape of sulphur dioxide, which hastens surface oxidation, and so fresh quantities of oxide of copper are supplied to the bath, and the reaction maintained until the whole of the sulphide is converted into metallic copper. The products are crude copper still retaining some sulphur and called "pimple copper" or "blister copper," depending upon the degree of reduction of its sulphur contents, and a rich slag which is returned to the third operation.

6. Refining. In this operation the pimple or blister copper is melted and oxidized to excess by exposure to a current of air during frequent agitation in order to remove, as far as possible, the last traces of sulphur, and to scorify the other impurities. Much oxide of copper is thus formed, which becomes dissolved in the bath of metallic copper. After the removal of the slag the oxide is reduced by covering the bath with charcoal or stone coal and plunging a pole of green wood into the copper. It is found that a little oxide must be left in the copper to prevent brittleness, so the action of the pole must be stopped before complete reduction has been effected. The exact pitch is ascertained by the examination of test pieces taken out from time to time. The finished copper is ladled into suitable moulds and the process is completed. The slag is returned to the fourth operation.

All these operations are conducted in reverberatory furnaces, which are characteristic of the Welsh process. They are all performed by manual labor. In calcination the material is stirred by hand, and when finished it is withdrawn by raking it toward a hole in the bed near the working door, and allowed to drop into a vault beneath. The escaping sulphur dioxide fills the surrounding atmosphere and makes it very unpleasant for the workman; but the Welsh copperman is a very contented individual, always provided that he is satisfied that his methods, however laborious and disagreeable, are sanctified by long custom. In the melting operations the slag is always removed by skimming, a piece of manual drudgery which no attempt has yet been made to ameliorate.

The present practice in Wales is based on the series of operations outlined above, variously modified. To describe these modifications is the object of this paper.

In some cases only such variations of the old practice are adopted as have been enforced by the change in the character of the smelting material received. In other cases the variations are much more extensive and embrace changes in furnace construction and mode of working which have resulted from the metallurgical progress of the world.

Some modifications of the old process are due to the difference in character of the material operated upon. In the olden time the bulk of the ores received were poor sulphuretted ores. The first object of the smelter was to concentrate these to a 30 per cent. matte, at the same time converting the gangue constituents at once into a slag that could be discarded. So the melting for coarse metal was necessarily the first melting process. Moreover, the ores are so rich in sulphur that a previous calcination was required to insure a 30 per cent. matte. Such poor ones, being now concentrated in the locality of the mine, no longer constitute the bulk of material received. Instead of so much poor ore the Swansea smelter now receives mattes, precipitates and rich ores, all of them rich enough to go at once to the fine metal furnace, at any rate after a previous calcination. But the fine metal slag is, of course, too rich to be discarded. It must be cleaned by a treatment with sulphuretted ores in the coarse-metal furnace. Only so much poor sulphuretted ores as are needed for this slag-cleaning operation are now purchased. Also, since all the sulphur contents of this limited supply are needed to collect the copper from the slag, the calcination of the ore (first operation) is redundant.

The present practice differs from the old in this, that the second operation has lost its importance as a source of the principal output of copper made and is now only used as a subsidiary operation to clean the fine-metal slag, and that the first operation (calcination of the ore) is no longer needed.

The calcination of poor ore is still performed, however, for the special purpose of making sulphuric acid. For this purpose the ores are selected with special regard to their sulphur contents. Obviously, the typical reverberatory calciner is not adapted for this manufacture, for the sulphur dioxide evolved is so far mixed with air that it is too dilute to be economically used in the leaden chamber, and, besides, the unconsumed smoke from the fire is mixed therewith and renders it unfit for the purpose.

Lump ore is usually burnt in the ordinary pyrites kilns. But fine ore, and also crushed coarse metal or imported mattes, are treated in the Gerstenhoffer calciner or in a muffle furnace. This last, however, is costly in fuel, but the calcination is more perfect than in the Gerstenhoffer.

Still other modifications have been due to endeavors to perfect the process and to economize the costs. Among these are the use of blast furnaces. The exclusive employment of reverberatory furnaces for all operations may be regarded as distinctive of the Welsh process. Yet blast furnaces have largely superseded reverberatories for cleaning slags, but only for that operation. A few works still adhere to reverberatories throughout. In each of these cases, however, blast furnaces were for a time employed, but a return to the old practice has been made, which they still prefer. But in a majority of works blast furnaces only are used for slag cleaning. These are mostly of the American water-jacket type. For this particular operation (slag cleaning) the advantage seems to be entirely on the side of the blast furnace. The loss of copper in the discarded slag is notably less and the economy in the working costs is shown by the following comparison:

The costs of slag-cleaning in water-jacketed blast furnaces per ton of Wages, 2s.; coal, 1s. 9d.; maintenance, 6d.; total, 4s. 5d., or, say, 4s. 6d. per ton.

The costs of slag--cleaning in Wales-jacketed blast furnaces per ton of burden are: Wages, 2s.; coke and coal, 1s.; maintenance, 3d.; total, 3s. 3d., or, say, 3s. 3-4d. per ton.

It must be pointed out that this economy is only realized where the blast furnace is kept in constant run, smelting about 400 tons per week. In some works a great proportion of the copper made comes from the refining of Chile bars and other brands of crude copper and the quantity of slag made is not sufficient to keep such a furnace in constant run. It can easily be conceived that the intermittent use of a blast furnace failing to realize an economy may be the reason why, in certain establishments, the blast furnace has been discontinued in favor of reverberatories.

The Use of Gas Furnaces.—The coal used for smelting in South Wales is always "small," consisting of the screenings left after the lumps have been separated for house purposes. The average price of this small coal is 6s. per ton. Now with such a low priced fuel it can be easily understood that little temptation exists to introduce the use of gaseous fuel for the sakẽ of its economy.

The grate of an ordinary Welsh furnace is to a great extent only a gas generator, and much of the heat utilized is due to the burning of carbon monoxide in the laboratory part. But the Siemens regenerative principle is of course absent.

Gas furnaces have been used for many years in the Swansea district for spelter making, But it is only recently that they have been adopted for copper smelting. It is said, however, that their success is most satisfactory, and they will probably soon come into general use. The general experience is that the use of gas furnaces saves two-fifths of the fuel, that is to say that 33 tons of coal made into gas and burned in a regenerative furnace will do the same work as 50 tons burnt in a grate. Another advantage would seem to be that a higher temperature can be obtained and the charge consequently melted in less time. But against that must be put the more rapid destruction of the furnace lining, entailing more costs in repairs.

Mechanical Calcining Furnaces.—Of all the operations that make up the Welsh method none calls louder for improvement than that of calcination. Apart from the consideration of costs, regard for the workmen alone should urge us to adopt a more reasonable method of stirring the material than the severely laborious one of hand-rabbling. There are two types of mechanical furnace now in use in and around Swansea, the revolving cylinder and the reverberatory with traveling rakes.

The revolving cylinder is identical in form to the one invented by Oxland & Hocking about 30 years ago, and used in Cornwall for the calcination of tin ores, but of larger dimensions, some of them being 80 ft. long, and none less than 60 ft. The cylinder is made of boiler plate and lined with fire bricks. It is furnished internally with longitudinal ridges, designed to give the material a certain fall during rotation. It is mounted on rollers and slowly rotated by means of cog-gearing. It is more or less inclined, the angle of inclination being chosen with regard to the desired rate of fall of the material through the tube, and the time required for the complete calcination. The rate of rotation will also affect the rate of fall, but it is better to keep that uniformly slow. The furnace is heated by a fire place which sends the flame in at the lower end. The material, ore or matte, is crushed to pass a ¼-in. hole and is fed in by regulated feed at the upper end of the furnace.

Like all cylinder furnaces, a large quantity of dust is raised by the rotation and much of this is carried into the flue. This dust may be collected and brought back, of course, but there is always a reasonable fear that all the dust carried into a flue is not deposited there.

This form of mechanical furnace sems to be the general favorite in the district, but Mr. Christopher James of the Pembrey works prefers a reverberatory with moving rakes. This consists of a long straight chamber heated by three distinct fires and is capable of calcining 50 tons of material in 24 hours. The stirring arrangement consists of a carriage, carrying the rakes or plows, moved by a continuous cable outside the furnace and so that, while one set of plows is traveling through the furnace the other set is traveling backward outside the furnace and getting cooled. The principle of construction of the moving plows is the same as that of Brown's horseshoe furnace, described in detail by Peters in "Modern Copper Smelting." Mr. James put up at first a revolving cylinder, but soon discarded it and adopted the reverberatory, with moving rakes. The following interesting figures were supplied by Mr. James:

The comparative cost of working the ordinary Welsh hand-worked calciner, the revolving cylinder and the reverberatory is as follows, including crushing: Welsh calciner, 7s. 6d.; revolving cylinder, 6s.; automatic calciner, 4s.

Brick Bottoms in Melting Furnaces.—The working hearth of a Welsh smelting furnace is made of the best silica sand obtainable in the district. The sand is, first of all, thoroughly calcined to burn out any organic matter that may be present. It is then spread to a depth of about 20 in. over the furnace bottom and carefully shaped by paddles to the desired form. The heat is then raised to the highest point for several hours, when the surface is found to be agglomerated into a thin crust. This crust when slowly cooled, to prevent cracking, will be strong enough to support a small charge of slag without breaking. Such a charge is then melted and much of it becomes absorbed by the sand. The excess is tapped and the furnace again slowly cooled. The crust has now been rendered sufficiently strong to bear an ordinary charge of smelting material and the usual work of the furnace is proceeded with. Rapid absorption takes place during the melting of the first few charges, after which, if the bottom remains intact, it is considered to be safely seasoned.

The usual plan is to make two sand bottoms, in the above manner, the upper one being only a few inches thick, so that when a fracture occurs the upper one only need be replaced.

The average life of the thin upper bottom is three months. The whole bottom will have to be melted out and renewed once every two years on an average. If this be not done, enormous quantities of copper are likely to accumulate in the bottom. The writer has seen very old furnaces, on being destroyed, yield as much as 70 tons of copper per furnace.

The two evils of the sand bottom, namely, shortness of life, and the swallowing up of capital in the shape of absorbed copper, are intended to be obviated by the brick bottom of Messrs. James and Griffiths.

The construction of this bottom has been described and illustrated by Peters, but the main points may be repeated here. A thickness of non-conducting and non-absorbent material is first laid on the arch of the furnace vault, and its upper surface shaped to properly receive the bricks. The material used is a brasque composed of coke dust and plastic clay. Ground anthracite alone would probably form a less absorbent and still warmer material for the bedding. The bricks are built in the form of an inverted arch to prevent the bottom from rising, and the interstices are filled up by a grouting of clay. Dinas or Stourbridge bricks may be used.

These bottoms have been in constant use during the past five years at Messrs. Elliots' works, and at the Cape Copper Company's works, and the results have proved highly satisfactory. A brick bottom has stood during five years' continuous work in a refinery furnace. Others have had an experience of three years' continuous work in smelting furnaces, dealing with all kinds of refractory ores, and are still apparently as good as new. Again, a brick bottom furnace, working alongside of a sand bottom furnace, has remained intact while ten new sand bottoms had been given to the latter. These facts constitute the evidence of actual experience, and they speak for themselves.

The cost of putting a brick bottom in a furnace having the internal dimensions of 16 ft. by 9 ft. is estimated as follows:

	£.	S.	D.
1,200 Dinas bricks at 60s. per m.	3	12	0
1 ton clay	0	9	6
1 ton coke dust	0	14	6
Labor on the spot	3	0	0
Total	7	16	0

The Direct Process.—"Shorten the work, spoil the copper," used to be a saying, having all the force of an axiom, among Welsh smelters. And perhaps the greatest innovation made by the ruthless metallurgical reformer in the established creed and custom of copper smelting is the direct process.

In this process the fine metal, instead of passing through the roaster furnace, is charged directly into the refinery furnace, after having undergone, in part, a calcination. The fine metal is crushed, and one portion—about two-thirds—is calcined until nearly free from sulphur. The calcined portion is now mixed with the remaining one-third of uncalcined, and this mixture constitutes the charge. The reaction, due to which the copper is produced in the refinery furnace from the mixture charged in, is the same as that which takes place in the roaster, namely, the reaction between oxide and sulphide of copper resulting in sulphur dioxide and metallic copper. There is, however, this important difference to be noticed between the two processes, that, whereas in the roaster the oxygen needed is gradually supplied by and absorbed from the current of air passed through; in the refinery, with the "direct" charge, all the oxygen needed is already present in the solid form. The reaction, therefore, instead of occupying several hours to complete, as in the roaster, takes place immediately the necessary melting temperature has been attained. The whole of the charge does not, of course, reach this temperature simultaneously. If it did, the whole of the sulphur dioxide would be evolved in one explosive rush. But this is bound to be true, that no part of the charge can be in a melted state for any length of time without becoming metallic copper. Now, the point is this, that in the roasting process sulphide of copper, as such, is present in the molten state throughout the whole of the time occupied in effecting the reduction, and that during the whole of that time volatile compounds of copper may be, and are, formed and great losses of metal occur thereby. While in the direct process the chance of forming volatile compounds of copper is reduced to a minimum, and so the expectation is that little loss of copper will occur. This expectation is fully borne out by practical results which now cover an experience of several years. This saving of metal is certainly the most important economy effected by the process.

The relative cheapness of the process is also a recommendation, as also is the fact that roaster furnaces are no longer needed, and so one fruitful medium of copper absorption involving the locking up of capital is avoided.

The following outline of costs will illustrate the economy of the direct process, as compared with the roaster process:

A case is supposed where a good smelting mixture, averaging 15 per cent. of copper, is to be dealt with, and the methods adopted to make fine metal are supposed to include the best Swansea practice.

To return 100 tons of ore mixture at 15 per cent. copper.

	£	s.	d.	£	s.	d.
Melting 100 tons at 6s. per ton	30	0	0			
Returning 85 tons slag at 4s. 3d. per ton.	18	1	3			
				48	1	3

Result 21 tons fine metal.

To return 21 tons fine metal by roaster process.

	£	s.	d.			
Roasting 21 tons at 8s.	8	8	0			
Returning 6¼ tons slag at 11s. 6d.	3	11	10½			
				11	19	10½

Result 15½ tons crude copper.

	£	s.	d.			
Refining 15½ tons at 12s.	9	6	0			
Returning 2 tons slag at 14s.	1	8	0			
				10	14	0
Total				70	15	1½

Say, 14s. 2d. per ton of ore, or £4 14s. 4d. per ton of copper.

To return 21 tons fine metal by direct process.

	£	s.	d.
Calcining 14 tons c. 6s.	4	4	0
Refining (same as if roasted)	10	14	0
Add on costs of making fine metal	48	1	3
Total	62	19	3

Say, 12s. 7d. per ton of ore, or £4 3s. 11d. per ton of copper. The figures here given are exclusive of all official charges.

CALCIUM CARBIDE IN EUROPE.—It is stated that the Schuckert Electrical Company of Nürnberg in Germany has completed arrangements to have in operation next year plants for making calcium carbide in Norway, Bosnia and Spain; in all of these the electricity required will be generated by water-power. The total yearly capacity of these works will be 20,000 metric tons of carbide. In view of the proposed increase in production, it is stated that a reduction in price of 20 marks per 100 kgs. has been offered for next year, on contracts.

COAL AND IRON IN BELGIUM.—The production of coal in Belgium during the first six months of the present year is officially returned as 10,887,618 tons, by 113 collieries, against 10,583,250 tons by 116 collieries during the corresponding period of 1897, thus showing an increase for the half-year of 304,368 tons. The stocks in hand at the end of the respective periods were 983,336 tons and 951,395 tons, or 31,941 tons more for the present year.

Although the out-turn of pig iron diminished from 515,701 tons during the first half of last year to 490,503 tons during the first half of the present, or by 25,198 tons (the diminution being chiefly in forge pig), the quantities of finished iron and steel increased from 238,572 tons to 265,807 tons, or by 27,235 tons, for iron, and from 253,340 tons to 266,955 tons, or by 13,615 tons, for steel, respectively during the half-yearly periods in question.

CENTRIFUGAL PUMPS IN SERIES.—Four Dumont centrifugal pumps, coupled in series and mounted on the same shaft, which is caused to revolve directly by a 75-volt dynamo, making 1,250 revolutions per minute, and raising 30 cubic metres (6,600 gals.) of water per hour to a height of 52 m. (170¾ ft.) were supplied to the Aiseau-Presles Colliery, Farciennes, Belgium, in 1896, and have since worked uninterruptedly, a new shaft having lately been put in. This method of coupling centrifugal pumps in series is now more and more employed because in such manner they work under better conditions than would one large pump, the speed being reduced by about one-third, friction diminished, and the yield increased, says the London "Colliery Guardian." The Dumont pump is also well suited for sinking shafts, having been found capable of keeping under large feeders, for which most other pumps occupying the same space at the bottom of the shaft would be quite inadequate. These improved centrifugal pumps are made by L. Dumont, of Paris.

COMPRESSED PEAT FUEL.—This is being made by the Canadian Peat Fuel Company, of Welland, Ontario, under the patents of Mr. A. A. Dickson, of Toronto. The peat is dried in the air and then disintegrated in a breaker revolving at a high speed, and is thus reduced to a powder without unduly breaking up the fiber. The peat powder is drawn from the breaker by an exhaust fan into a large hopper, and from this it descends into a machine which compresses it into cylinders 2 in. diameter and 2 in. long, under a pressure of 30 tons. It is thus reduced to one-sixth the bulk of the raw material. The machine has a capacity of 1½ tons of compressed peat per hour. This fuel is claimed to be non-friable and weatherproof, owing to its solidity and the external glaze imparted by friction in the forming dies. The inherent moisture of the peat is reduced to 12 per cent., and the weight of the fuel is 83 lbs. per cu. ft., as compared with 73 lbs. for bituminous coal and 93 lbs. for anthracite coal. No prices are quoted, but the fuel is said to have been successfully tested in competition with coal.

MINES OF THE LA PLATA MOUNTAINS, COLORADO.

Written for the Engineering and Mining Journal by R. W. Petre.

The La Plata Mining District, situated in the La Plata Mountains 15 miles northwest of Durango, was established so long ago and so little development has resulted, that the richness of its veins has almost been forgotten. Discovered in 1873 and explored on its eastern flank for silver veins and on the western for gold placers, after a few developments of some importance the fortunes of the camp fluctuated with the price of silver until 1893, when a spasmodic boom took place, only to be quickly destroyed by the panic of that summer. Of late years, however, several of the old silver properties have been reopened and worked for their gold values, in some instances with success, though more attention has been given to the rich sylvanite veins; however, peculiar conditions, topographical and climatic, and the expense of transportation, still deter many mining men from giving the District the attention it deserves.

The geology of the La Plata Mountains can be described briefly as in upheaval of sheets and dikes or diorite through altered sedimentary mesozoic beds. Throughout the eastern and central portions of the range the diorite forming the core and skeleton of the mountains has upheaved the sedimentary beds into every conceivable position and burst through them in the nearly vertical dikes where are found fissure veins carrying gold and silver. On the western slopes at the headwaters of the Mancos and Bear rivers, the nearly horizontal beds are impregnated at the contact with mineral, and in places by the agency of vertical fissures out of which diorite and porphyry have spread in all directions, forming so-called blanket veins containing varying quantities of free gold.

At an elevation of about 10,500 ft. in an arm of the valley of the La Plata River, is the Baker Contact, a series of sedimentary beds capping the diorite over which has flowed a porphyritic mass containing possibly $1.25 in free gold to the ton, though, as on the Mancos, some small vertical fissures run as high as $12. Three years ago Smith & Moffat erected a 10-stamp mill to treat this body of low-grade material, then supposed to be worth $6 per ton; but very soon, finding it impossible to pay expenses, closed the works. In the zone between 8,300 and 9,000 ft. there are many large, well-defined veins, principally of a very base character and low in silver and gold values, and much work of a superficial nature has been done on them at different times, but always with the same disappointing results; still there have also been very rich deposits of sylvanite, found generally near the surface, as at the Southern Boy. Between the elevations of 10,000 and 12,000 ft., the fissure veins, containing rich sylvanite streaks evenly disseminated are very strong and well defined, and show every indication of permanence, but the wall rocks vary very much, as the following list of mines will show:

Columbus, diorite and porphyry.	Elevation.....	.....11,300 ft.
Cumberland, limestone and diorite.	"	.....11,700 "
Durango, diorite.	"	.....10,200 "
Bulldozer, brown standstone.	"	.....10,250 "
Small Hopes, diorite.	"	.....10,800 "
Little Jane, diorite.	"	.....10,500 "

North Star, Sundown, between La Plata andstones and above red beds, horizontal.

Attracted by the undoubted value of the sylvanite ores, and the reported similarity of some of the country rocks to those of Cripple Creek, we spent several days examining the principal mines and prospects with somewhat negative results. In the first place, the upper series of veins is very inaccessible at all times, and absolutely so during the winter, owing to the difficulty in constructing roads over such precipitous mountains, and the tremendous fall of snow and consequent snow slides in the winter, so with few exceptions the ore must be packed out on burros, and all provisions, lumber, coal, etc., brought in by the same means. Thus the cost of mining becomes very great, and the treatment charges, including teaming and rail freight, are high. Besides, it is very hard to get really good miners to stay six months above the clouds without ever getting away from the mine.

As there is abundance of spruce timber, and very good coal can be bought at the mines at Hesperus, 15 miles distant, for $1.40 per ton, there is no doubt it will be necessary for a well developed mine to own its own reduction works and so save excessive transportation charges on all but the very high grade ores.

On several mines, such as the Bessie G., on the east slope of Snow Storm Peak, the dwelling houses and shops are built into the slope of the hill over the mouth of the tunnel, from which it is unsafe to take one step after the snow has come until it disappears in the summer. A good deal of systematic work is being done at several mines where extremely rich ore is encountered. The Cumberland, opened as a silver mine years ago, and provided with a fine 30-stamp mill entirely unsuited to the ore, has 3,000 ft. of tunnels between 11,100 and 11,700 ft. elevation. The ore body in the middle tunnel appears to be some 12 in. thick and 250 ft. long, running 200 to 1,200 oz. in ruby silver, and a considerable portion of the vein now being worked runs high in gold. In Silver Lake basin, the Columbus, opened to a depth of 200 ft., shows, on the lower level, a continuous ore body of black quartz of an average value of $15 per ton, accompanied by an exceedingly rich streak of sylvanite, bringing the average above the shipping point. The Bessie G., in which a small ore body produced some $30,000, is being opened on a seam now not ½ in. thick, gradually widening, but running 200 oz. of gold to the ton. The Small Hopes, which is operated by MM. Pret & Traschler of Zurich has an ore shoot 1 ft. thick and 30 ft. long, averaging over $40 per ton, and is opened by shaft to a depth of 275 ft., and the owners are engaged in driving a crosscut tunnel to this point, cutting several other veins in its course, and tapping the original vein at a depth of about 1,100 ft. This company also has bromination works for 10 tons daily,

CUMBERLAND MINE, LA PLATA MOUNTAINS, COLORADO.

with which they have successfully treated their sylvanite ores, saving over 95 per cent.

The Little Jane, at the head of Basin Gulch, has a similar vein of very high value, and is now a steady shipper, and appears to have the best indications for permanency.

On the western slope, among the mesozoic beds, are the North Star and Sundown, from which a free milling ore is being extracted showing as high as $50 per ton on the mill plates; but so far the value and extent of this blanket vein has not been determined, the mineral appearing to come from the vertical fissures and not belonging to the sedimentary beds.

Besides the above mentioned mines, there are several others being worked on leases, such as the Durango Girl and Ruby, on the eastern slope of Eagle Pass, the latter producing some of the richest sylvanite ore I have seen from the district, and there are many other most promising looking veins showing a probability of increased value in depth, as the whole district shows strong evidence of surface leaching. I cannot but remark upon a common but most serious drawback to the progress of this camp, namely, the total occupation of the mineralized zone by impecunious locators, who, protected by the lax interpretation of the law regulating the annual assessment work, have taken up the country in blocks, knowing that they are in no worse case than their neighbors, who consequently must supply affidavits of proofs of assessment work. This is all the more aggravating as it will be absolutely necessary for a company working on a large scale to have several claims in order to have room for its tunnels. Here are two cases coming under my notice: One man holds as many as 40 locations, and another 23, with not one patent, and both pretend to do the annual assessment work of $100 on each location; and many of these and other claims have been held for upward of 20 years. With few exceptions, I saw no locations on which work enough has been done to secure a patent, nor has it been done so as to show the value of the vein. In this the locators do themselves and the district great injustice, though they do not appear to realize that investors in mines must at least see some indication of value, and

will not be content to join with the lazy owners in guessing as to what riches may be lurking within the next 10 ft. I can safely say that $100 worth of work would represent the cost of the average development in the La Plata Mountains, and this in many cases has required 20 years to accomplish.

The scenery along the summit of the peaks and in the basins formed by the terminal ridges of the gulches is magnificent; from Lewis Peak and Cumberland Mountain, looking east and south, the country falls away in successive spruce clad ridges till the distance is lost in the mesas of New Mexico, while to the north are the snow clad peaks of the Needles and the mountains about Silverton, Telluride and Rico.

The accompanying photographs show, one, the Cumberland Mine, and the other the Bessie G. Mine; in the latter case the entry to the tunnel is in the path of the snow slides, and has been protected by a shed extending some distance from the opening.

THE WESTERN AUSTRALIAN EXPOSITION.

The preparations for the Exposition to be held at Coolgardie, in Western Australia, are now well advanced and the buildings are under construction. The intention is to open the Exposition on March 21st, 1899. Applications for space should be made by January 1st. The Government of Western Australia is directly interested, and the management is in the hands of an executive committee which has its headquarters at Coolgardie. This committee is represented in its dealings with exhibitors by Mr. E. T. Scammell, who is special commissioner and foreign agent, and has his office at No. 18 Queen Victoria Street, London.

The buildings, we are informed, are of the simplest character; but they will be sufficiently spacious to serve their purpose—that of bringing manufacturers of certain objects into touch with their customers in Australia, where many things—necessities rather than luxuries—are in great demand. Generally speaking, the Exhibition building consists of four lines of buildings, about 70 ft. in width, of which 45 ft. represent the width of covered courts, and 25 ft. that of open galleries. These four lines of buildings inclose a rectangle 528 ft. long and 239 ft. wide. The space inclosed is divided into two equal parts, one devoted to ornamental gardens, and the other to open air exhibits. As may be supposed, a large part of these galleries is to be devoted to machinery and mining exhibits; one side of the rectangle will constitute the Westrallian Court, and one of the longer sides is devoted to the Colonial and Foreign Courts. By the classification, exhibits are divided into 17 groups, and 101 classes, nearly all of which embrace objects of primary necessity; in fact all, except Group III.—Fine Arts—and Group XIII.—Women's Industries—are strictly utilitarian.

The list of groups is as follows:

I. Mining and Mining Machinery.
II. Mining and Metallurgy.
III. Fine Arts.
IV. Chemistry, Apparatus and Processes.
V. Electricity.
VI. Gas and Lighting other than Electricity.
VII. Heating and Cooking Apparatus.
VIII. Cutlery, Ironmongery, Firearms, Military Weapons.
IX. Road Carriages, Cycles, Ambulances.
X. Machinery, Machine Tools, Hydraulic Machines, etc.
XI. Prime Movers, Distributing Power, Railway Plant.
XII. Civil Engineering, Construction, Architecture, Sanitary Appliances, etc.
XIII. Women's Industries.
XIV. Timbers.
XV. Condensers and Filters.
XVI. Fermented and Spirituous Liquors, etc.
XVII. Food Products.

Engineering occupies eight groups, of which Groups I., II., X., XI. and XIV., refers directly or indirectly to mining industries. Group XV.—Condensers and Filters—is significant of rainless coast districts, and doubtful water supply. Food products are to be represented, and alcohol occupies a group. Curiously enough, clothing is not referred to, although it is presumed that exhibits of clothing would not be refused admission. The project of the promoters of this exhibition is evidently the laudable one of making conspicuous those objects for which there is the greatest demand in the colony, a demand which will continue to increase, so that those manufacturers who have enterprise enough to send out the right objects will in all probability create a new and important trade. This applies especially to makers of mining machinery and motors adapted to stand rough usage. Exhibitors of condensers and filters should do well, as also should those of cooking apparatus, cutlery, and ironmongery, and food products. Such an exhibition offers an excellent opportunity for American manufacturers.

FIRE-CLAY AS AN ABRASIVE.—A new abrading material equal to emery in hardness, according to the claims of Mr. Floryanowicz, the Russian inventor, as described in the London "Engineer," is made from fire-clay. The clay is thoroughly washed, mixed in a pasty mass, dried, and then burned at a temperature of about 2,300° Fah. The result is a uniformly hard product with a hardness of 8 to 9 on the Mohr scale; this is equal to that of emery. The burned clay is crushed and used for making wheels, etc.

OIL FUEL FOR LOCOMOTIVES.—The locomotives working through the Arlberg Tunnel on the Austrian State Railroad now burn oil entirely. They are specially designed heavy engines, two-cylinder compounds, having cylinders 500 mm. and 800 mm. diameter, and 625 mm. stroke. They have eight wheels, all coupled; the wheels being 1.300 m. diameter. The engines formerly burned Bohemian coal, but it was found almost impossible to ventilate the tunnel. With the oil fuel very little difficulty is experienced. The oil burners used are of the type devised by Mr. Holden, of the Northeastern Railway, in England.

NOTES ON GOLD MINING IN HASTINGS COUNTY, ONTARIO, CANADA.

Written for the Engineering and Mining Journal by J. T. Donald.

The gold fields of Hastings County, Ontario, Canada, have been before the public since 1866, and yet, at the present time, there is only one stamp mill in operation in the whole district. There are, in North Hastings, deposits of what is ordinarily called free milling ore, but these are very pockety and uncertain. The greater part of the gold of the region is associated with mispickel, and it is this mode of occurrence that has been the chief factor in the tardy development of this region. The writer, through the courtesy of Mr. J. H. L. Stewart and Mr. A. F. Wood, both of Madoc, had recently the pleasure of going over a portion of this Hastings field, and from what was seen on a hasty trip there are reasons to believe that better times are in store for gold mining in Central Ontario.

The most interesting point in the district is Deloro, about 1½ miles from Marmora Station, on the Central Ontario Railway. It is some 30 years since mining and milling were begun here. The property has passed through several hands, and is now owned by the Canada Gold Fields, Limited. Two veins are worked, and the shaft in each is down about 150 ft. In both the gold is associated with mispickel in quartz. The company has been crushing the ore and treating it by the Sulman-Teed or bromocyanide process. Unfortunately, the leaching plant, which was situated about 1½ miles from the mine, was recently destroyed by fire. The energetic manager, Mr. Kirkguard, stated that his company was perfectly satisfied with the results obtained by this process and that it was the purpose to continue to use it. At the same time, he explained that it did not take out the coarse gold and, moreover, it has been clearly demonstrated that a goodly percentage of the gold of this ore could be recovered by ordinary amalgamation. A lot of 100 tons had been sent to a neighboring mill, where it had been put through a stamp mill and over ordinary plates. The assay value of the ore was $13 per ton. The amalgamation recovered 60 per cent. of this, or $7 per ton.

As a consequence of this and other tests, the company is putting in a 10-stamp mill (to be increased to 20 stamps in the spring) and expects it to be at work upon the ore in the course of a month. The intention is to treat the ore as ordinary free milling ore, separate the mispickel, etc., by vanners, then apply the bromocyanide process to the concentrates, and finally roast these for their arsenic. As soon as the plant now being installed is in working order, the equipment of this mine will be first-class in every respect, and should the expectation of the company as to the efficiency of the plant be realized, it is probable that gold mining in North Hastings will enter upon a long deferred era of prosperity.

Another interesting property in this region is the Belmont Mine, in the adjacent township. It is operated at the present time by the Cordova Exploration Company, Limited, a British concern. This property has two large and well defined parallel veins of quartz, carrying 2½ to 3 per cent. of sulphurets, and little or no arsenic. The gold is closely associated with the sulphurets. It is low grade, the average value from wall to wall being $6 to $8 per ton. By a careful system of selection, ore of somewhat higher grade is sent to the mill, which is a well equipped 10-stamp mill and, as already said, the only mill in operation in the whole Hastings District. Mr. Kerr, the manager, claimed that the last clean-up yielded a bar value of $4,300, the result of 26 days' run, and in addition to this there is the gold contained in the concentrates.

Mr. Kerr corroborated the statement that he had milled 100 tons from the Deloro Mine, and by ordinary amalgamation had recovered 60 per cent. of the assay value of this arsenical ore. It was claimed by Mr. Kerr that the only secret of the successful treatment of arsenical ores is that very little mercury should be used. Failure to be careful on this point makes all the difference between failure and success, according to his experience.

WAGES IN THE WELSH TIN-PLATE TRADE.—The employers in the Welsh tin-plate mills have recently adopted a new wage list for 1899. According to the new list, the mill men are to be paid by weight, whereas by the list now in existence, known as the list of 1874, they were paid by area, with extras for heavy plates. Thus, the principle upon which payments is now made will, if the new list be ever adopted, be entirely changed. The adoption of this list by tin-plate employers is significant of the change that has taken place in the tin-plate trade, and, drastic though the changes proposed may be, they are based upon a principle long advocated by the workmen—uniformity of wages, maintained by the joint power of masters and men. It is thought that the men will actively oppose the new list.

PROPERTIES OF CALCIUM.—The properties of calcium were discussed at a recent meeting of the Paris Academy of Sciences by M. Moissan. The melting point of pure crystallized calcium was determined by a thermo-couple tube 760° Cent. The author found that the metal can be cut, but it is much less malleable than sodium or potassium, as it can be broken, and shows a crystalline fracture. When totally free from nitride, its color is brilliantly white, recalling that of silver. The density was found to be about 1.85, and it is hard enough to scratch lead, but not calcium carbonate. Neither chlorine, bromine, nor iodine attacks calcium in the cold, although the corresponding haloid salts are formed at higher temperatures. Calcium burns brilliantly in oxygen, the temperature resulting from the combustion being so high that a part of the quicklime produced is melted and volatilized. When burnt in air, the calcium combines with both constituents together, nitride and oxide being simultaneously formed. At a dull-red heat the metal also combines with carbon with great energy, forming CaC_2. At high temperatures the reducing power of calcium is remarkable, oxygen being readily removed from sulphur dioxide, phosphoric anhydride, boron trioxide, silica, and the oxides of carbon.

HIGH-PRESSURE STEAM AS AN EXPLOSIVE*

By H. Schaw.

A disastrous explosion in a coal mine at Brunnerton, New Zealand, in 1897, attended with great loss of life, which was caused by a shot-hole loaded with gunpowder having blown out its tamping and ignited the coal dust in its vicinity, led the writer to think that high-pressure steam might be used instead of dangerous explosives in fiery coal mines.

Briefly, the suggestion is that a cartridge of pure water lodged in a shot-hole should be converted into steam at a pressure of about 150 lbs. per square inch by means of electricity of low tension, the cartridge or boiler to be made of such strength that it would burst at about this pressure, when the force set at liberty would break down the coal.

The writer made an experiment to ascertain whether it would be possible to boil water by the heat produced by a current of electricity passing through a platinum wire similar to that used for firing mines immersed in water, and found that it was successful. He also found that it was desirable to use a single wire of suitable thickness in length, forming a single loop in the boiler or water cartridge, to be burst by high-pressure steam in the shot-hole. It was found objectionable to coil the wire so as to insert a greater length within the boiler, because electricity passed between the coils of wire, and the coil interfered with the free circulation of the water as it was being heated.

The writer was unable to obtain in New Zealand the necessary means for practically making experiments with a suitable boiler or cartridge; and, consequently, he is not aware whether water converted into steam under pressure will conduct the heat developed in the wire so rapidly away from it as to prevent it from fusing, in the same way as water does before it is converted into steam. The writer is of opinion that it will do so, and that at the moment when the boiler bursts the wire will fuse and the electric circuit will be broken, and no risk of ignition of firedamp or coal dust will remain from the heated wire. Should it be found that the wire fuses as soon as the water has obtained the full amount of latent heat to convert it into steam, then it would be impossible to obtain high pressure by this means.

But, assuming that it would, the main question is, Would this force be sufficient? It is, of course, very much inferior to the expansive force of gunpowder or other explosives. If in the judgment of experienced mining engineers the expansive force of steam would not be great enough to be practically useful in breaking down coal in ordinary coal mines, which seems to the writer quite probable, then it is useless to pursue the subject further. Under the supposition, however, that the force so developed would be sufficient to break down the undercut coal in a mine, the writer thinks that the practical working of the proposed method would present no great difficulties, and that it would be perfectly safe in any coal mine; and this is its only recommendation, for it certainly would be more expensive and troublesome than the usual methods of blasting.

As an approximation, the writer would observe that a water cartridge 1¾ in. in diameter and 3½ in. long, to be used in a 2-in. blast-hole, would hold about 8.4 cu. in. of water. It would be converted into high-pressure steam and burst the cartridge in about 1½ minutes with the electric power the writer suggests, and would thus exert a sudden force of about 1 1-3 tons.

The source of electricity suited to the case would be a dynamo so wound that at 800 revolutions per minute it gives a current of 160 amperes, with an electro-motive force of 60 volts. The internal resistance being 0.375 ohm, about 25 horse-power would be required to work this dynamo. The conducting cable must be of low resistance—about 0.625 ohm total resistance of cable. With low-tension electricity, such as the above, there is no danger of sparks unless the conducting wires come into contact.

The heat required to boil the water in the cartridge is developed in a thin platinum wire 6.1 in. long, 0.0127 in. diameter, and weighing 28.18 grains per yard, and having a resistance of 1 ohm.

The current employed will fuse this wire at the instant that the cartridge bursts by the steam pressure, and the heat is no longer conducted away from it by the surrounding water; the current is thus broken and ceases. For additional security, it would be easy to devise an electro-magnetic circuit breaker, to be included in the circuit near the dynamo, which would disconnect the cable instantaneously and warn the engine driver to stop the engine as soon as the cartridge burst and the current was no longer needed.

*Abstract of paper read before the British Institution of Mining Engineers.

MAGNESITE IN INDIA.

According to the reports of the Indian Geological Survey, relating to the chalk hills of Salem, in the presidency of Madras, the magnesite deposits comprise two areas, a small one to the south, through which at its southwest end the Madras Railway and the road to Omalur Pass, and a larger one to the northeast of the latter, and which keeps a position to the east of the railway. The former covers about 1¼ square miles and the latter about 3½ square miles. It extends, however, further away in a northeasterly direction. The hills rise gently from the plains and expose a set of low, undulating surfaces, generally bare of vegetation and without water. They are streaked with white, owing to the veins of magnesite, from which (erroneously) the name chalk hills is taken.

The plains surrounding the chalk hills are composed of an ancient gneissic series wrapped into folds with a northeast-southwest strike. The two areas of the chalk hills are essentially two great intrusive masses of olivine chromite rock and other olivine-bearing rocks. These rocks have undergone great mineral change, whereby they became serpentinized more or less completely, and secondly the serpentinized product was further altered with the formation of magnesite, chalcedony, etc. This original rock, composed entirely of olivine and chromite, is found in an unaltered condition at many places in the chalk hills where the rock has resisted the metamorphic influences tending to convert it into serpentine.

BESSIE G. MINE, LA PLATA MOUNTAINS, COLORADO.

A chemical analysis of a specimen made in the survey laboratory gave: Silica, 39.10; magnesia, 48.26; iron, alumina, manganese, chromium, moisture, etc., 12.64 per cent. The specific gravity was 3.176.

In working, the ore is separated from the rock by means of pickaxes, chisels, wedges and hammers, sorted and piled up into little heaps on the ground in front of the huts occupied by the superintendents, where it remains until the Canvery River becomes navigable; that is, from the end of June to the end of September. It is then sent down by land to Moganoor, a place on the river about 40 miles southerly from Salem, whence it is boated to Porto Novo, on the Coromandel coast. Thence it is shipped to Europe by the Porto Novo Iron Company.

About 100 tons are said to have been extracted from the mines, one block of which weighed 2 tons, but it was found that the export of the crude ore to England did not pay, owing tho the quantities available from Scotland, Styria, etc. At a depth of 50 or 60 ft. from the surface water was met with, and this difficulty helped largely to stop the work, inasmuch as no better means of removing the water were used than buckets and ropes.

In these hills there occur also occasional examples of other less basic rocks. They are generally black or of dark color, and stand out in

rounded lumps, having escaped alteration. All these rocks contain olivine, but not to the exclusion of everything else. They also contain green pyroxene and sometimes black mica. Some also contain a small amount of plagioclase feldspar, thus linking the ultra-basic rocks with the basic.

The mineral most abundantly represented in the chalk hills is the magnesite. The magnesite appears in veins, which are, as a rule, irregular in their disposition. The number of veins and the corresponding quantity of the magnesite are points which deserve special attention. The richest areas are, generally speaking, the western end of the north area and the south side of the south area. The moderately rich area occupies generally the more central parts of the chalk hills. The poorest area merely shows a few thin veins and patches of the magnesite here and there, and impossible of estimation. The total area embraced under the richest areas amounts to about 620,000 sq. yd., and that of the moderately rich one to about 5,536,000 sq. yd.

Considered altogether, the amount of magnesite in these hills is practically unlimited. The richest portions stand up in rough, lumpy hillocks, sometimes, as in the case of the hills at the western end of the north area, rising as much as 100 to 140 ft. above the plains, while in other parts, as the south edge of the south area, they rise only to 30, 40 or 60 ft. above the plains. Hence the mineral can be worked in open quarries and taken away to the rail. The quarries could all be reached by a light tramway or by carts.

THE COWPER-COLES PROCESS ON BROKEN HILL ORES.

With regard to the Cowper-Coles process, which has been tried on the ores of the British Broken Hill Proprietary Company's mine, in New South Wales, the report of that company for the year ending June 30th, 1898, says that the Cowper-Coles invention for the extraction of zinc and other products from Broken Hill and similar ores has been undergoing an exhaustive and thorough trial on a commercial scale during the last three months, and the final results may shortly be expected. Mr. Cowper-Coles reports under date of October 24th, 1898, as follows: "I beg to report that for the last few months we have been busily engaged at Hayle trying the various stages of our process on a commercial scale, with the result that we have succeeded in establishing the following important points: (1) We have erected a new furnace, which has greatly reduced the cost of roasting as compared to the ordinary roasters hitherto used. (2) We have succeeded in leaching out the zinc within 4½ per cent. (3) We have worked out an economical method of dealing with the residue containing the lead and silver after leaching out the zinc, and have obtained some splendid deposits of lead leached from the residue, which can be readily melted without the addition of any flux, the amount of loss being very small indeed. (4) We have succeeded in producing litharge of excellent quality by direct leaching from the Broken Hill ore. (5) After many difficulties, we have succeeded in devising a process for the treatment of zinc oxide, suitable for paint manufacture, direct from Broken Hill ore. As regards the white lead process, it has not advanced as far as the other processes, but I hope very shortly to be able to tell you that we are in a position to have this reported on by independent experts."

RECENT DECISIONS AFFECTING THE MINING INDUSTRY.

Specially Reported for the Engineering and Mining Journal.

MEASURE OF DAMAGES FOR CONVERSION OF COAL BY RAILROAD COMPANY.—The measure of damages where coal mined, but left on the surface, is taken by a railroad, and occupied for a roadbed, is the same as that for the conversion of personal property—the market value, less the cost of marketing.—Lehigh Valley Coal Company vs. Wilkes Barre & Eastern Railroad Company (41 Atlantic Reporter, 37); Supreme Court of Pennsylvania.

CONSTRUCTION OF CONTRACT FOR NATURAL GAS.—Provision in a contract to furnish gas to one that the latter should declare an average minimum daily amount of gas, which it should take per annum, and should pay for it, though it took less, and that all gas used in any month should be paid monthly, requires the payment only at the end of the year for the part of the minimum amount not taken.—Conemaugh Gas Company vs. Jackson Farm Gas Company (40 Atlantic Reporter, 1000); Supreme Court of Pennsylvania.

CONSTRUCTION OF PHOSPHATE LEASE.—A lease of phosphate lands provided both for royalties to the lessor of 50c. per ton mined, payable bi-monthly, and a payment of $125 monthly, to be credited on royalty account. The court held that the meaning was that each period of two months should be taken by itself, so that any excess of royalties thereof should be paid to the lessor, but if they fell short of the fixed payments the latter should be considered the rent of that period.—Chase vs. Knickerbocker Phosphate Company (53 New York Supplement Reporter, 220); Supreme Court of New York.

LIABILITY ON SHARES OF STOCK IN IRON COMPANY.—An agreement to purchase from a syndicate a certain number of shares of stock in an iron company which had been subscribed for by the syndicate, but had not yet been issued, "or a proportionate part in case of over subscription," is not a contract of purchase which renders the purchaser a stockholder in the company on a subsequent transfer of the stock to him without his knowledge, but is merely an executory agreement to purchase, which renders him liable for damages for its breach on his failure to perform. But if he approves, ratifies or acquiesces in the transfer to him he is liable as a stockholder, although the transfer was originally made without his knowledge.—Greene vs. Sigua Iron Company (88 Federal Reporter, 203); United States Circuit Court of Appeals.

THE CALIFORNIA STATE MINERS' ASSOCIATION.

Specially Reported for the Engineering and Mining Journal.

The seventh annual meeting of the Association began in San Francisco November 21st, with a very large attendance. The morning session was chiefly occupied in the delivery of addresses of welcome and the responses thereto; the presentation of credentials and their reference to a committee.

At the afternoon session this committee reported 570 delegates present in person or represented by proxy, the representation by counties being as follows: Alameda, 20; Amador, 54; Butte, 20; Calaveras, 21; El Dorado, 36; Nevada, 147; Kern, 2; Placer, 62; San Francisco, 362; San Francisco Chamber of Commerce, 36; Sacramento, 1; Sacramento Chamber of Commerce, 3; Santa Clara, 6; San Jose Association, 6; Sierra, 52; Siskiyou, 5; Shasta, 34; Trinity, 1; Tuolumne, 35; Yuba, 26.

The following committee on resolutions was announced: J. M. Walling, Nevada; Charles G. Yale, San Francisco; J. M. Fulweiler, Placer; A. H. Ricketts, Alameda; E. C. Voorhies, Amador; C. C. Bush, Shasta; J. F. Halloran, San Francisco; C. W. Cross, San Francisco; F. R. Wehe, Sierra; James O'Brien, Yuba; Ira Hill Reid, Calaveras; W. T. Hammond, Butte; A. M. McDonald, Tuolumne; R. R. Bulmore, Santa Clara; George E. Dow, Chamber of Commerce, San Francisco.

President Neff made his annual report, in the course of which he recited the following as among the works accomplished by the association:

"We have, in the first place, created a favorable sentiment toward the mining industry. We have to a great extent restored amity between miners and farmers. We have proven to the agriculturist that our efforts have been to the mutual advantage of both. We must still further impress the farmers that their cause is our cause, and that our interests are combined and that we want their active co-operation with us.

"We have pretty well established the fact that the restoration of mining, the protection of agricultural lands from overflow with mining debris and the improvement of our rivers is a Government matter, and that, if we all continue to work as a unit, we will secure the aid necessary to accomplish the purpose.

"We have already been instrumental in starting quite a number of mines that had lain idle for years and without doing damage to any one.

"Members of the United States Debris Commission have been called away to attend to other duties in the Government service, a fact we very much regretted; but like patriotic Americans we bade them godspeed and patiently awaited the conclusion of their noble work where most needed.

"We have secured recognition from both State and Nation in the way of appropriations, and we confidently expect still further aid and encouragement in the future.

"I have the assurance from Congressmen that a satisfactory mineral land bill will be passed during the coming session."

President Neff referred to the fact that none of the officers of the Association had ever received compensation for their work, and recommended that the secretary be made a salaried officer, with offices in or near the Mining Bureau.

The reports of Secretary Sonntag and Treasurer Hendy showed that the balance in the treasury at the beginning of the year was $777, the receipts from contributions, $2,322; expenditures, $1,450; balance on hand, $1,649.

A resolution was presented by Judge Walling, calling attention to the necessity of the mining industry of California being represented at the Paris Exposition in 1900 and requesting the appointment of a committee to work to that end. The resolution was referred to the Resolutions Committee.

A resolution by Charles G. Yale, calling attention to the heroic conduct of Felix Chappelet, Jr., in rescuing the miners at the time of the fire in the compressor house, at the mouth of the tunnel of the Eureka drift mine on the Forest Hill Divide, was adopted by a rising vote. A resolution thanking Jefferson Doolittle for his gift of a handsome banner was also adopted.

A communication from the San Francisco Chamber of Commerce, asking for a contribution of $250 to assist in defraying Hugh Craig's expenses to Washington in the interest of the Nicaragua Canal, was referred to the Committee on Finance.

A. H. Ricketts, of the Committee on Mineral Lands, made a report, in which he reviewed the mineral lands bill now before Congress, and expressed the opinion that the attitude of the committee on public lands was favorable to its passage. The report urged that saline lands be not treated as agricultural lands, but be put on the same footing as mineral lands, and that a bill with this in view be introduced in Congress.

The election of officers was made the special order for 2.30 p. m. on motion of Judge Niles Searls.

The work of the Mining Congress, held at Salt Lake this year, was reviewed by Professor S. B. Christy.

"A Department of Mines and Mining" was the subject of a report by Tirey L. Ford. He said that the committee of which he was a member had taken steps to secure the creation of the desired department and a secretary of mining in the President's Cabinet. There was a sentiment in its favor in the States west of the Mississippi, but in the big coal and copper districts of the East much educational work would yet have to be done. The report predicted the success of the enterprise at an early session of Congress, and advised that the work be kept up. The Association then adjourned to the next day.

At the morning session on Tuesday Judge Walling, of Nevada County, chairman of the Committee on Resolutions, presented his report. The resolutions recommended by the committee consisted of the following: That the branches of the miners' association be urged to increase their membership; that the Legislature of the State be urged to give its efforts toward furthering the cause of the association; that the Mineral Land bill be given definite time for consideration in the Legislature;

that the report of the Committee on Mineral Lands be referred to the Committee on Legislation; that they present to the Legislature a law relating to the location of the performances of labor upon and making affidavits of labor performed upon mining claims; that the association urge the passage of the law now in the United States Congress for the creation of a Department of Mines and Mining; that the association second the efforts of their committee to have a representation of mining interests in the Cabinet of the nation; that the miners' association be represented in the Paris Exposition of 1900, and an appropriation from the State Legislature for this purpose be requested; that the Executive Committee appoint a committee of seven to co-operate with any committee that may be appointed to secure such an appropriation, and supervise and arrange for such an exhibit; that the members of the association co-operate with the State Mineralogist to complete a full register of the mines and minerals in this State and in the preparation of maps; that the hearty thanks of this association be tendered to President J. H. Neff for his services the last seven years; that as the loss to miners through lack of water has been from $4,000,000 to $7,000,000 this year this association appoint a committee to confer with the various commercial bodies of this State, the delegation at Washington and the State Legislature that united efforts may be made for the impounding and conservation of the waters so that they may be delivered to the people as needed.

The report of the Committee on Resolutions was adopted as read.

In response to a request of the San Francisco Chamber of Commerce, $250 was contributed to assist in the work of urging on Congress the necessity of building the Nicaragua canal.

Resolutions of thanks to Secretary Julian Sonntag were passed. Addresses were made by Judge Niles Searls, Mr. John F. Davis and Congressman Marion de Vries. The last named speaker said: "At the last session of Congress the California delegation devoted their whole attention to the Mineral Lands bill. We induced the Secretary of the Interior to recommend its passage to both houses of Congress. It has been favorably commented on by the committees of both houses. We hope to get a hearing for it in the coming session of Congress, and I am confident that it will pass by a large majority. What we want is a time set for its hearing.

"Some progress has been made in the matter of debris dams. The Engineering Department has been called upon and has acted as rapidly as possible.

"I think the next California delegation will have the same harmony as that which prevailed in the last. In the future, as in the past, it will afford me great pleasure to obey your commands in this important matter of mining."

A resolution recommending good roads for California and legislation to this end in the State Legislature was unanimously adopted.

At the afternoon session officers were elected as follows: President, Jacob Neff (for the eighth time); vice-president, William Ralston; treasurer, Samuel J. Hendy; secretary, Edward H. Benjamin.

The association then adjourned until next year. After the adjournment President Neff announced the following committees to serve for the ensuing year:

Executive Committee-at-Large: W. W. Montague (chairman); A. Caminetti, J. M. Walling, Thomas Mein, S. B. Christy, John M. Wright, Harold P. Power, Dan T. Cole, Lewis T. Wright, Joseph Sloss, John Bermingham, C. W. Cross, George Stone, Julian Sonntag, W. S. Keyes, E. A. Belcher, Andrew Carrigan, Edward Coleman, Curtis H. Lindley, Charles G. Yale, and Lewis E. Byington.

Executive Committees for Counties: Alameda, Frank A. Leach, Felix Chappelet; Amador, J. F. Parks, E. C. Voorhies; Butte, A. Ekman, W. P. Hammon; Calaveras, W. L. Honnold, David McClure; El Dorado, A. H. Ten Broeck, H. E. Picket; Nevada, B. S. Rooter, James McBride; Placer, T. J. Nichols, Amos Stevens; Santa Clara, Charles C. Derby, Robert R. Bulmore; San Francisco, J. F. Halloran, S. Mooney; Sierra, Frank R. Weihe, J. O. Jones; Shasta, M. E. Dittmar, J. M. Gleaves; Siskiyou, H. H. Hunter, Andrew G. Meyers; Tuolumne, J. G. Hopper, W. G. Long; Trinity, John McMurray, P. Paulson; Yuba, Joseph Durfee, James O'Brien.

Committee on Mineral Lands: A. H. Ricketts, chairman; George C. Sargent, H. T. Power, A. H. Ten Broeck and W. C. Ralston.

Committee on Mineral Exhibit in Paris Exposition: B. N. Shoecraft, chairman; A. Ekman, A. B. Paul, A. S. Cooper, Fred Zeitler, B. T. Price and Andrew G. Meyers.

Committee on Dams: A. Caminetti, chairman; George C. Sargent, John Spaulding, J. M. Gleaves, R. M. Green, L. L. Meyers, Fred Searles, Thomas Clark, J. F. Cowdery, Mark B. Kerr, A. C. Hincksen, J. O. Batcher and James O'Brien.

Committee on Department of Mines and Mining: Tirey L. Ford, chairman; Charles G. Yale, W. C. Ralston, J. F. Halloran and W. S. Keyes.

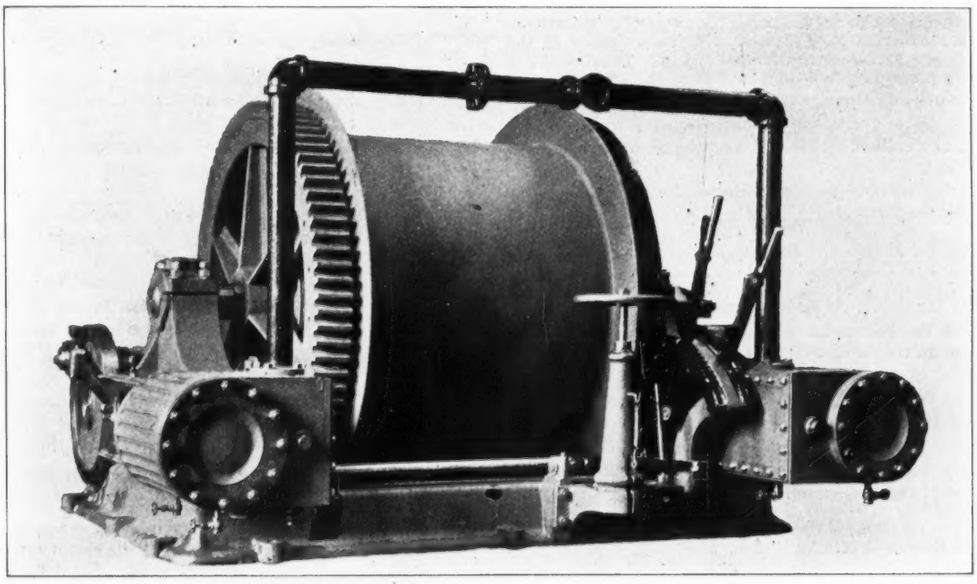
Committee on Legislation: John G. Davis, chairman; Curtis H. Lindley, W. F. Prisk, W. B. Lardner, A. H. McDonald, E. C. Voorhies, A. W. Chapman, C. W. Cross, A. S. Rau and F. F. Golinsky.

Committee on Finance: Andrew Carrigan, chairman; Joseph Sloss and Willis G. Dodd.

Committee on Jetties and Dredging: John H. Wright, chairman; John F. Engelbright, Thomas J. Barbour, F. George Gow and B. T. Lacey.

AN AMERICAN HOISTING ENGINE FOR JAPAN.

The accompanying illustration shows a hoisting engine recently designed by Mr. Earle C. Bacon, of New York, and shipped to Japan for use in a coal mine in that country. The engine is of the double-cylinder horizontal type, with cylinders 14 in. diameter and 18 in. stroke. The valves are operated by a link motion, the reversing lever being placed in the quadrant shown at the right hand of the engraving. The drum is single-geared to the engine shaft. It is so arranged that the gear can be used in hoisting, or in lowering the drum can run loose on the shaft, independent of the gearing or the engine, and controlled by the safety brake. The drum is thrown into or out of gear by a lever placed alongside of the reverse lever in the quadrant. The brake is operated by the hand-wheel shown in the engraving. If necessary or preferred, the drum can remain in gear and the lowering can be done by steam and controlled by the reverse lever.



BACON HOISTING ENGINE FOR A JAPANESE COAL MINE.

This engine was designed for hauling coal cars on an incline 2,000 ft. long. In this case the drum is run loose, as described above. When lowering, the cars going down the incline by gravity, the speed being controlled by the brake.

The engine has been carefully designed and built, all parts being made extra strong. Engines of this type have been built up to 500 H. P.

In addition to the engine shown, Mr. Bacon has recently shipped others of the same type and of his design to China, Mexico and South America, showing the very general demand for American built machinery.

THE DONETZ COAL-FIELD IN RUSSIA.—The total quantity of coal sent away from the Donetz coal-field of Russia in the year ending August 31st, 1898, was 5,068,880 tons, against 4,225,030 tons, 3,558,920 tons, 3,349,130 tons, and 3,146,940 tons in the previous years going backwards. The following are the quantities of coal and coke together forwarded by the principal companies in this coal-field during the last working year: Gorlovka, 533,550 tons; Goloubovka, 458,670 tons; Routchenko, 449,480 tons; Alexeief, 407,690 tons; Makeevka, 403,140 tons.

COAL EXPORTS OF GREAT BRITAIN.—The exports of coal, coke, cinders and briquettes from the United Kingdom in October reached a total of 3,299,177 tons, compared with 3,223,926 tons in October, 1897, and 3,056,735 tons in October, 1896. The coal exports for the 10 completed months of the present year were 29,555,049 tons, compared with 30,929,465 tons in the corresponding period of 1897, and 28,981,509 tons in the first 10 months of 1896. The average rates per ton in the 3 periods work out as follows: 1898, $2.38; 1897, $2.15; 1896, $2.12.

QUESTIONS AND ANSWERS.

(Queries addressed to this department should relate to matters within the special province of this periodical, such as mining, metallurgy, chemistry, geology, mineralogy, machinery, supplies, etc. As it is manifestly impossible to devote space to all the questions and notes constantly received, preference will be given to topics which seem to be of interest to others besides the inquirer. We cannot here undertake to give professional advice on problems requiring special investigation and which should be referred to a consulting expert. Brief replies to questions will be welcomed from correspondents. While names will not be published, we request that all inquirers send their names and addresses. Anonymous questions will not be answered.—Editor E. & M. J.)

Cyanide Tanks.—Can you inform me whether there are firms who deal in cyanide tanks or material for making them?—F. S. T.

Answer.—There are a number of firms and companies who furnish cyanide tanks and other requisites for leaching works. If you will consult the advertising columns of the "Engineering and Mining Journal," you will find the names of several such manufacturers.

Selenium.—Is there any concern in the United States which manufactures selenium?—D. J.

Answer.—This question was answered in the "Engineering and Mining Journal" November 12th, page 582. No selenium is produced in the United States. We have since been informed that it can readily be furnished in any quantity likely to be needed, provided a sufficient demand can be shown to justify its production. The metal can be obtained from ores found in Colorado, but has not been saved because there was no sale for it.

New Mexico Placers.—Are the gold placers in the Ortiz Mountains and along the Galisteo River in New Mexico still the property of the Government so that a prospector can take up a claim? Could a party make wages on the dry placers there with a gold washer?—W. M. C.

Answer.—A number of claims have, we believe, been taken up in the districts you mention. How much land remains uncovered by claims or grants can only be ascertained by consulting the records of the land office.

As to the possibility of making wages on these placers, we can give no opinion. Only actual experience can show that.

Little Butte and Extension Mines, California.—Can you give me any information with regard to the extent of development, width of vein, ore values, output and prospects of the Little Butte Gold Mine and the Little Butte Extension Company, of Randsburg, California?—B. E. N.

Answer.—News items in relation to the Little Butte Mine have been given from time to time in the "Engineering and Mining Journal." The mines of the Randsburg district, though some rich ore has been found there, are generally small, and development work has been rather on a limited scale, owing to the climate and want of water. In giving news from a mine the statements of the parties operating it must generally be accepted. To answer all your questions would require a careful expert examination of the properties.

San Andreas Gold Mining Company.—Can you give me any information about the San Andreas Gold Mining Company, of Calaveras County, California? The stock was placed in Boston two or three years ago.—F. C.

Answer.—News items about the San Andreas Mine have appeared in the "Engineering and Mining Journal" from time to time. At latest accounts preparations were in progress for sinking the shaft deeper. In common with many mines in California those in Calaveras County have suffered this year from short supply of water. The company issues no statements of any kind, and we are not aware that it has ever paid any dividends. The stock is not quoted on any of the exchanges.

Petalite.—Is this mineral of any commercial value? Analysis of a sample shows: Lithium, 5.86; silica, 75.25; alumina and iron oxide, 18.00. Is there any demand for lithium in metallic form or as a carbonate? Is there any manufacture of these products carried on in this country?—L.

Answer.—There is no demand for petalite commercially. Lithium carbonate is used in medicine, but the requirements for this purpose are not large; the well-known and much advertised lithia tablet is one of the compounds in which it appears. A very small quantity is used in coloring fire-works. For metallic lithium there is no demand. The lithia business is controlled by a German monopoly, which holds the price at a high figure. There is in California an enormous deposit of lepidolite, a mineral containing about the same percentage of lithia as petalite, which is available as soon as there is a market for it.

Phosphorus.—What is the yearly production of phosphorus in the United States? What are the imports? What is the duty on imported phosphorus? What is the market price of phosphorus?—F. J. M.

Answer.—1. The manufacture of phosphorus in the United States is in the hands of two firms, J. J. Allen's Sons in Philadelphia, and Albright & Wilson at Niagara Falls. Nearly all their product is taken by a single concern, the Diamond Match Company. The business is therefore closely handled and it is impossible to obtain any statistics of production.

2. The imports of phosphorus are very small, and they are not reported separately.

3. The duty on phosphorus imported is 18 cents a pound.

4. The quotation for phosphorus is given weekly in the "Engineering and Mining Journal." It is at present 45 to 65 cents a pound, according to delivery and size of order.

Copper Roofing.—Is copper ever used in this country for roofing buildings? Is there any reason why it should not be used for that purpose?—M. B.

Answer.—Copper has been used for roofing very little in this country. In New York there are a few building having copper roofs. The best known is Trinity Church, on Broadway, opposite Wall Street, which was built over 50 years ago. The Sub-Treasury building on Wall Street also has a copper roof. Both have lasted many years with very little repair. Copper has been used in Europe from the earliest times, and it far outlasts lead or any other metallic roofing, but other metals answer the purpose and are cheaper, so are more generally used. Tin-plate is the metal roofing most largely in use. Zinc is also used, though to a much less extent. Its applications for this purpose were described in a series of articles published in the "Engineering and Mining Journal." October 24th-November 14th, 1896. Lead was much used in former times, but it is heavier and not as durable as copper.

Slate Measures.—I have been interested in your articles on slate, but there are some terms used which I do not understand. What is a "square" of slate? How much will it weigh? Will an ordinary frame house carry a slate roof safely? What is the life of a slate roof?—R. B. J.

1. A square of roofing slate is 100 square feet as laid on the roof; that is, it includes slate enough to cover 100 square feet, with all allowances made for laps, etc.

2. It is usually estimated that 3½ squares of Vermont or Pennsylvania slate will make a long ton; that is, a square will weigh about 650 pounds.

3. From these data you can readily estimate the weight of a slate roof. A building must be of very flimsy construction indeed if it will not carry a slate roof.

4. A slate roof, properly laid, ought to last for almost an indefinite time. We have heard of one which was in use for 88 years, and was still in good condition when the building it covered was torn down. Certainly such a roof ought to have a life quite as long as that of a frame house.

BOSNIAN IRON ORE FOR AUSTRIAN IRONWORKS.—The Krainische Industrie Company has arranged a contract with the Bosnian Provincial Government for the supply of 25,000 tons annually of iron ore from the Varese mines for its blast-furnace plant at Servola, Trieste, over a long period.

COAL-MINING IN HOLLAND.—A company has just been formed in Brussels, with a capital of 3,000,000 fr., to be known as La Societe des Charbonnages Willem Sophia (Bassin Houiller de Limbourg-Hollandais), to acquire and develop certain collieries at Spekholzerheide, in the Kerkrade district of Limbourg, Holland.

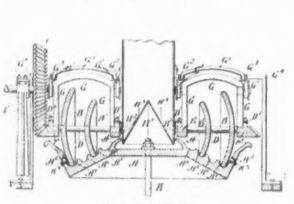
PATENTS RELATING TO MINING AND METALLURGY.

UNITED STATES.

The following is a list of the patents relating to mining and metallurgy and kindred subjects issued by the United States Patent Office. A copy of the specifications of any of these will be mailed by the Scientific Publishing Company upon receipt of 25 cents.

Week Ending November 15th, 1898.

614,074. CRUSHING OR AMALGAMATING MILL. Henry Banfield, Adelaide, South Australia. The combination with a stationary base provided with a groove, of rollers adapted to travel therein, a revolving



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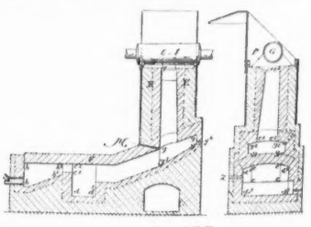


614,129.

frame carrying the axles of the rollers, a stationary frame independent on the base, along which the revolving frame is guided, and a central feed surrounded by the frames.

614,129. METALLURGICAL FURNACE. Leon Pietraschewski, Borissoglebsk, Russia. In combination, the gas-generating chamber, the hydrocarbon burners, a receiver for the molten metal in the rear of the chamber and having a communication with the chamber near the top, the inclined chamber extending rearwardly from the receiver, a vertical shaft connecting with the rear portion of the inclined chamber, and a hydrocarbon pipe connecting with the inclined chamber at the base of the vertical shaft.

614,076. ALTERNATING CURRENT MOTOR AND MODE OF OPERATING SAME. Charles S. Bradley, Avon, N. Y., Assignor to the General Electric Company of New York. The method consists in converting

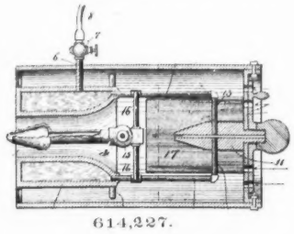
a single-phase alternating current into polyphase currents, varying the rate of the currents, charging a rotary magnetic field therewith, and charging a co-operating independently movable motor element within the field with the single-phase currents.

614,126. WIRE-DRAWING MILL. Karl A. Nestmann and Louis Herzenberg, Riga, Russia. A series of draw plates having rollers between them, with baths carried on a movable frame.

614,200. FUEL-COMPRESSING MACHINE. Edward S. Cobb, San Francisco, Cal. In a briquette machine, an outer main wheel having an overhung rim, a ring wheel mounted within the rim, plungers set at intervals near enough to compress the plungers as they are carried in succession between the inner wheel and the outer wheel rim.

614,225. ELECTRIC METER. Ludwig Gutmann, Peoria, Ill. The combination of a main coil and shunt coil establishing fields in non-intersecting planes, with an endless conductor provided with perforations, a spindle for the endless conductor, a counting train adapted to engage with the spindle, and a retarding magnet reacting on said rotary conductor.

614,227. DEVICE FOR THAWING EARTH FOR PLACER MINING. Frank Kraemer, Chicago, Ill., Assignor, by direct and mesne assignments, to Adolph Bloch and Sol Kurz, same place. A heater consisting of an outer cylinder, an oil chamber, an oil supply pipe, a burner located within the cylinder, pipes located within the cylinder and connecting the oil chamber with the burner, a burner located within the central opening of the oil chamber, pipes connecting the last burner with the oil chamber, a valve located beyond the inner end of the oil chamber and adapted to control the supply of oil from the last pipes.



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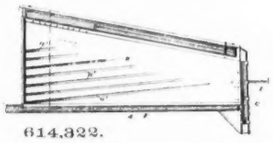
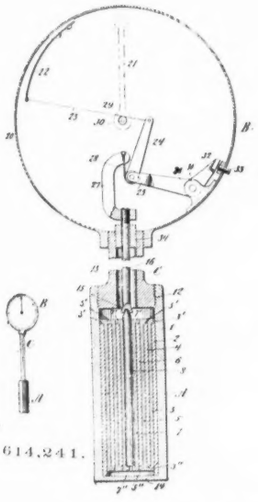


614,322.

614,322. ORE CONCENTRATOR. Samuel I. Hallett, Aspen, Colo., Assignor of one-half to David M. Hyman, Cincinnati, Ohio. A table provided with tapered riffles which merge into the table surface along a line oblique to the table itself.

614,241. PYROMETER. Edward A. Uehling, Newark, N. J. The combination with the expansion mechanism, of the pointer 21, the spring 22, the flexible cord 23, the lever 24, pivoted in the lever 26, the lever 26 being pivoted in the indicator case B, means for adjusting the lever 26, and connection between the lever 24 and the expansion mechanism whereby the pointer 21 is actuated in one direction by the spring 22 and in the opposite direction by the expansion mechanism, and whereby the position of the pointer 21 may be adjusted independently of the lever 24 and the expansion mechanism.



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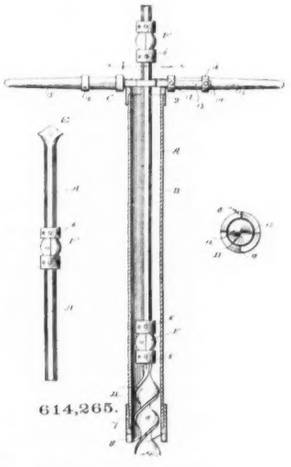


614,265.

614,265. MINER'S PROSPECTING TOOL. Theodore S. Glover, Norwalk, Conn., Assignor to Orlando I. Allen, South Norwalk, Conn. The combination with a solid central auger or drill, of a tubular auger having a cutter at its lower end surrounding the central drill but separate therefrom, and an operating handle secured to the central drill at right angles, the handle being adapted to drop into recesses formed in the top of the tubular auger and lock the two parts.

614,293. PROCESS OF AND APPARATUS FOR REFINING OILS. James Davidson and Charles G. Hepburn, Sydney, New South Wales. The process consists in subjecting the oil to centrifugal force in connection with a filter bed and then subjecting it while in spray form to the action of a cooling medium.

614,306. BELT CONVEYER. Amor J. Mason and James P. Mason, Philadelphia, Pa., Assignors, by direct and mesne assignments, to the Mason Manufacturing Company of Pennsylvania. The combination of a belt or endless apron, and rollers rotably mounted thereupon, but capable of rotating independently of said apron.

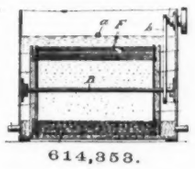
614,318. PORTABLE ELECTRIC LAMP. Owen T. Bugg, Jr., New York, N. Y. A portable electric lamp having a single tubular conducting casing and an insulating lining, in combination with one or more battery cells electrically connected with the casing at its lower end and one terminal of an electric lamp carried also by the casing, together with conductor connecting the upper pole of the battery with the remaining terminal of the lamp.

614,324; 614,325 and 614,326. ROLLING MILL. Sigmund V. Huber, Youngstown, Ohio. The combination of two or more stands of rolls arranged in tandem, the rolls of each succeeding stand having a series of passes which differ from each other, and means for shifting the succeeding stands of rolls so as to bring any of the passes into line with any of the passes in the rolls of the preceding stands.

614,339. ELECTRIC ACCUMULATOR. Federico Prescetto, Turin, Italy. An electrode for secondary batteries having an active mass containing ulmate of ulmin.

614,352. PROCESS OF AND APPARATUS FOR MANUFACTURING GAS. Levi Stevens, Trenton, N. J. The process consists in heating heavy oil to a temperature approximating 300° F., then injecting it by highly superheated steam into a retort, and therein heating the mixture to a high temperature, but below that at which the oil vapor would be destructively decomposed, and then passing the volatilized oil vapor and superheated steam into a body of incandescent fuel for converting them into fixed carbureted hydrogen gas.

614,353. APPARATUS FOR WASHING ALKALI AMALGAM. Henrik C. F. Stormer, Christiania, Norway. Apparatus comprising a suitable vessel adapted to receive the amalgam and a solvent, a cylindrical drum revoluble therein and composed of concentric rows of bars extending between two heads and a fabric interposed between the bars.



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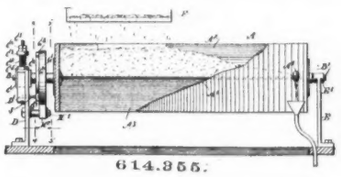
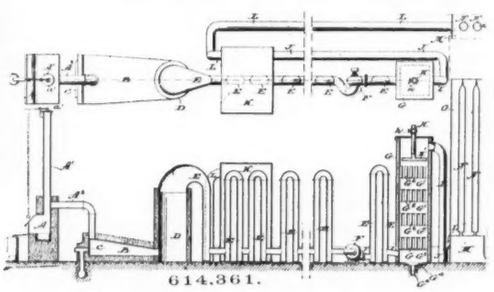


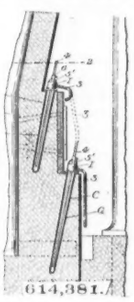
614,355.

614,355. CONCENTRATE RECEIVER. John C. Waters and Richard C. Waters, Romley, Colo. A concentrate receiver comprising a box provided with a button separating the box into two compartments, the box being mounted to turn and also yieldingly supported at one end, so that it will move downward under the weight of the accumulating concentrates, and means for turning the box automatically when it moves downward.

614,360 and 614,361. METHOD OF AND APPARATUS FOR PURIFYING AND SAVING METALLIC FUME. Eayres O. Bartlett and Carl V. Petraeus, Joplin, Mo., Assignors to said Bartlett and Oliver H. Picher. The method consists in first cooling down the smoke, then bringing it into intimate contact with water, but without passing it through a body of the same, to eliminate strong mineral acids, then reheating the smoke to prevent moisture in the screens and finally screening the residual smoke to separate the solid particles.



614,361.



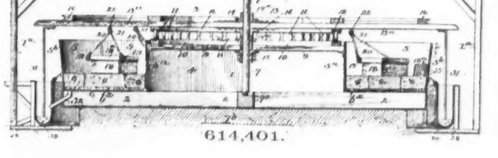
614,381.

614,381. COOLING DEVICE FOR FURNACE WALLS. Ambrose P. Gaines, South Pittsburg, Tenn. The combination with the wall of a blast, provided with one or more recesses, of one or more jamb pipes, each consisting of a tube closed at the lower end and having straight outer walls, an inlet pipe extending downwardly into the tube and terminating in close proximity to the closed end, forming an annular circulating chamber between the inlet pipe and the inner wall of the tube, and an outlet pipe connected to the tube near the top and communicating with the annular chamber.

614,396. PUMP. Hugh W. Kimes, Dayton, Ohio, Assignor to the Stilwell-Bierce & Smith-Vaile Company, same place. A pump casing having a deck, a downwardly projected wall, extending from one side of the deck and terminating in a lower parallel ring and wall, in combination with a removable stuffing box supported on the deck and ring, and forming a seal between the lower chamber and the side chamber valves and their casing, the casing being constructed and arranged to be detachable from the pump casing.

614,400. COMPOSITION, PROCESS OF AND APPARATUS FOR MAKING GAS. George W. Lee, Frank Elliott and George Tatham, Sydney, New South Wales. The process consists in first impregnating atmospheric air with aqueous moisture, and then passing it through or over a special composition consisting of a mixture of commercial sulphuric ether, citronella oil and water.

614,401. ORE REDUCING AND SEPARATING MECHANISM. Philip J. Lonergan, Colorado Springs, Colo., Assignor to Fred Hills and James F. Burns, Victor, Colo., and Mary P. Adams, San José, Cal. In combination, a supporting base and a vertically extending frame having a cross head; a series of radial supporting arms resting on the base and an annular working chamber held on the supporting arms having a grinding bed and a series of screened outlets in its outer wall above the bed; a series of horizontal radial arms bracing the inner walls of the annular chamber and having center bearing; the centrally disposed muller frame shaft, having its lower and upper ends journaled on the base-supporting arms and the cross head; the radial arms 13a, keyed to the shaft, the arms having pendent roller bearings engaging a runway supported on the horizontal radiating brace arms; the muller or drags connected to the arms 13a; the slime gutter adapted to receive the screen discharge and the stirrers held pendent from the muller frame.



614,401.

614,427. IRON CASTING. Samuel Hufty, Camden, N. J., and Joseph K. Caldwell, Philadelphia, Pa. A casting of iron susceptible of being drawn, welded, hardened or tempered, and containing throughout its mass allotropic carbon in amorphous condition and much in excess of the combined carbon, and having a specific gravity of about 1.8, a calorific power of about 8,000 heat units, and a specific heat of about 0.2400.

PERSONAL.

Mr. W. C. Cushing, of Kingman, Ariz., is in San Francisco.

Mr. John H. Millzner, of Tucson, Ariz., is in San Francisco.

Mr. G. M. Gouyard has returned to Denver after a trip in Old Mexico.

Mr. Joseph W. Pinder, mining engineer for a St. Louis syndicate, is in San Francisco.

Mr. Leo. A. Scowden, a mining engineer representing English capital, is in San Francisco.

Mr. Alfred Fellows has been visiting the Belmont Mine in Ontario, in which he is largely interested.

Mr. W. R. Woodward has been appointed general manager of the Barstow Reduction Works, Barstow, Cal.

Mr. H. L. Taunton of Helena, Mont., has been investigating milling methods in vogue in Colorado mining camps.

Mr. Alexander Hill, Mining Engineer of London, reached New York from Canada this week. He sails for Liverpool December 3d.

Mr. C. J. Fulton, superintendent of the Copper Jack Mine, near Clancy, Mont., is to spend the winter in Boston and other Eastern cities.

Mr. W. G. Brown has been elected secretary of the Philadelphia & Reading Coal and Iron Company to succeed the late Franklin P. Kaercher.

Mr. V. M. Clement has been in New York this week on his return from England. He made only a short stay, starting for Utah on professional business.

Lord Sudely, president of the Tarantula Gold Gold Mining Company, Limited, of London, Eng., spent two days at the company's mine near Jamestown, Cal., recently.

Mr. W. F. Kane has been appointed superintendent of the Republic Gold Mining and Milling Company's mill at Republic, Wash., in place of James H. Plack, resigned.

Mr. Goodwin Powell, engineer of the Mt. Carbon Company, of Powellton, W. Va., has been East on a vacation of a couple of weeks. He is expected back this week.

Mr. John Williams has accepted the position of manager of the Southern Mineral Company, which is to develop mineral lands in the South. He is at present in North Carolina.

Mr. Louis R. Alberger, engineer for an Eastern firm, has been in Denver and will visit the leading mining camps of Colorado, investigating the conditions of mining properties.

Mr. James Hutchinson, of Silver City, Ida., superintendent of the Trade Dollar gold mines, is in Pittsburg, Pa., to attend the meeting of the board of directors of the company.

Mr. C. Bieneman has returned to Vancouver, B. C., for the winter. He has been in the Omenica District during the past season with the Forty-third Milling and Mining Company.

Mr. P. McCann, superintendent of the Kansas-Burroughs Consolidated Mining Company, property in Gilpin County, Colo., has gone on a short visit to the Pacific slope for his health.

Mr. C. M. Setterwell, an iron manufacturer of Sweden, and Messrs. A. Kurwernhart and Karl Prubel, steel manufacturers of Teplitz, Australia, are visiting the industrial plants of Pittsburg.

Mr. Charles W. Scott, of Philadelphia, a mining engineer who has been nearly five years in the gold fields of South Africa, was last week in Denver, Colo., after a month spent in Cripple Creek.

Capt. John J. Healy, the head of the North American Transportation and Trading Company, which plays so large a part in the affairs of the Yukon, has been in Toronto on business connected with the company.

Mr. S. Symons, president of the Alaska Gold Fields, Limited, an English syndicate that is parent of the Alaska Exploration Company, is in San Francisco. His son, Mr. A. Symons, accompanies him. They are making a tour of the United States.

Mr. J. C. Dickey, formerly manager of the Gold Coin Mines Company, has returned to Central City, Colo., after a six weeks' trip for his health to Excelsior Springs, Mo., and other points. He will open up properties for an Eastern syndicate.

Messrs. Marcus L. Hewett and Lyman A. Sisley, forming the Hewett-Sisley Company, Butte, Montana, have opened a mining department in connection with their financial business. They propose to promote, sell and operate mining properties on legitimate lines.

Mr. Frank D. Howe, who has had 20 years' experience in the mines of the mountain states, and Mr. Edward Juessen, who has been engaged in professional work in Idaho and Colorado for eight years past, have formed a partnership under the firm name of Howe & Juessen, and will carry on a general civil and mining engineering business at Spokane, Wash.

OBITUARY.

W. M. Wilson, vice-president of the American Steel Casting Company, died in New York City on November 18th, from the effects of an operation for appendicities. He had been identified with the iron and steel industries for a number of years.

John Potts, for 40 years proprietor of the Orchard Iron Works at Pottsville, Pa., died recently at Altoona, Pa., aged 76 years. During his life he built much machinery for the anthracite coal mines and breakers, besides equipping blast furnaces and rolling mills. It is said that he built the first Cornish bull pump that was built in this country.

Columbus Waterhouse, of San Francisco, died at the Big Dipper Mine, at Iowa Hill, Placer County, Colo., on November 25th, in the 71st year of his age. He was one of the pioneers of California; arriving in San Francisco in August, 1850, he went to Sacramento, Big Canyon and Diamond Spring. He spent several years in mining before he established the manufacturing firm of Waterhouse & Lester, with branches at Portland, Ore., and San Jose, Cal. He was connected with many mining enterprises, notably the Candelaria Mine, of Mexico, which developed into a paying mine. He owned and was working the Big Dipper at the time of his death. He leaves two sons and a daughter.

SOCIETIES AND TECHNICAL SCHOOLS.

University of Tennessee.—The September number of the University Record contains an account of the graduating exercises of the class of 1898 and a list of graduates and undergraduates of the University that were in the war with Spain. The University had 57 commissioned officers in the army and navy on July 20, 1898.

Minneapolis Engineers' Club.—The members of the club, on invitation of the Civil Engineers' Society of St. Paul, recently inspected the car raising device known as the Bronsden Counterbalance, in use on the Selby Avenue hill by the Twin Clyt Rapid Transit Company, and afterward partook of supper at the Windsor Hotel.

Northeast Kootenay Miners' Association.—At the annual meeting at Golden, B. C., recently, the following officers were elected for the ensuing year: President, F. W. Aylmer; vice-presidents, Golden Mining Division, W. G. Mitchell Innes; Windermere Mining Division, J. L. Mackay; Donald Mining Division, W. G. Neilson; secretary-treasurer, E. A. Haggen; committee, Messrs. M. Dainard, H. G. Low, W. McNeish, C. Cartwright and H. G. Parson.

Missouri School of Mines.—This school, at Rolla, Mo., has published a little book of views of the school buildings, lecture rooms, laboratories, etc. Besides the cuts, which are well chosen, the pamphlet contains some condensed information about the school and the various courses of instruction. The location of the school is such that the lead and zinc districts, the coal shale and clay fields, and the lead and iron regions of the State are within easy reach. According to the director, Mr. George E. Ladd, the school is growing rapidly. The preparatory department was abolished three years ago, and the standard raised, causing the attendance to fall off, but the number of students last year was 117.

Society of Chemical Industry—New York Section.—At the regular meeting on November 25th Dr. Leo Blakeland, chemist of the Nepera Chemical Company, of Nepera Park, N. Y., read a paper on "Some Photo Chemical Facts and Theories." He entered into the minutest details of the manufacture of all kinds of photographic papers, in connection with which he gave a demonstration of various photographic printing processes. He also described the manufacture of the emulsions with which the papers are coated. A very interesting discussion followed, in which Dr. Wardmen, Dr. Bogert, Mr. Fuerst and others took part in all of the questions propounded.

Mr. W. Walley Davis, Jr., who was to have read a paper on "Chemical Specification for Chilled Iron Car Wheels," was unavoidably absent, and his paper was read by title.

American Foundrymen's Association. — The committee appointed to establish a bureau for distributing uniform standardized drillings has prepared four samples, designated as A, B, C and D. Sample A, which has been ground to pass a 40-mesh sieve, gives one total carbon and one graphite. Sample B gives a low silicon, a medium sulphur, a low manganese, a phosphorus which is within the Bessemer limit, and a titanium. This has been passed through a 20-mesh sieve. Sample C gives a medium silicon, high sulphur, medium manganese, medium phosphorus and a titanium. This has also passed a 20-mesh sieve. Sample D gives a high silicon, low sulphur, high manganese, high phosphorus, and a titanium, and has passed through a 40-mesh sieve. The drillings were prepared under the supervision of Prof. C. H. Benjamin, and the standardizing was under Prof. A. W. Smith, both of the Case School of Applied Science, Cleveland. The chemists engaged in standardizing the four samples are Messrs. Booth, Garrett & Blar, Philadelphia; Prof. A. W. Smith, and Cremer & Bickneli, Cleveland, O., and Andrew S. McCreath, Harrisburg, Pa. The samples are packed in ½-lb. bottles and are sold at $5 per lb., this being the smallest amount sold. They may be had of Thomas D. West, Sharpville, Pa.; Dr. R. Moldenke, Pittsburg; James Scott, Pittsburg; P. W. Gates, Chicago; E. H. Putnam, Detroit.

Franklin Institute.—At the meeting of the section of Mining and Metallurgy, on November 23d, A. E. Outerbridge, Jr., read a paper on the "Microstructure of Bronze." The paper treated on the results obtained from studying bronzes microscopically. He claimed that no great good could result from such study till some uniform methods of study were adopted.

Mr. W. R. Webster read a paper entitled "Specifications on Structural Steel and Rails." The author spoke of the progress made in recent years in producing more uniform results in the manufacture of structural steel and rails, due to better pnderstanding between the manufacturers and the engineers drawing up the specifications. The requirements of the engineers were still in many cases impossible to execute and were also contradictory. This is now especially the case with specifications of foreign engineers for export orders, and for this reason some steel manufacturers decline to consider them. The specifications of the United States Government Engineers, which had to be rigidly met by the manufacturers, eventually brought about much improvement in the quality of the product and in the methods of manufacture. He thought, however, there should be a uniformity in tests and in the manner of drawing up specifications, and spoke of the work accomplished in this direction by the International Committee of Tests.

American Society of Mechanical Engineers.—The 19th annual convention was held in New York this week, beginning November 29th. The annual report gives the membership of 1881 as follows: Honorary members, 14; members, 1,395; associates, 123; junior members, 349. To these shall be added 21 members, 4 associate members and 14 junior members elected at the present meeting. The financial statement showed receipts for the year of $32,407, and expenditures of $31,756. The excess of assets over liabilities is $51,285.

The following officers were elected: President, George W. Melville, Washington, D. C.; vice-presidents, E. D. Meier, St. Louis; Geo. R. Stetson, New Bedford, Mass., and B. H. Warren, Pittsburg, Pa.; treasurer, William H. Wiley, New York; managers, Edgar C. Felton, Harrisburg, Pa.; R. H. Soule, Chicago; A. M. Goodale, Waltham, Mass.

Mr. Gus C. Henning, of the American section of the International Association for Testing Materials, said that the work so far done by the section was of a preparatory character. Mr. William Kent presented a report on a standard method of "Steam Boiler Trials," and Prof. Jacobus gave a verbal report on the "Uniform Testing of Engines."

One of the most interesting papers presented was on the "Bursting of Small Cast Iron Fly Wheels," by Prof. C. H. Benjamin. In the experiments wheels of 15 and 24 in. diameter were used, and a Dow steam turbine, capable of running 10,000 revolutions a minute, was used. The speed was determined by the musical note given by the swiftly revolving wheel. The error was thought to be within 5%. The conclusions reached were: Fly wheels with solid rims, of the proportions usual among engine builders and having the usual number of arms, have a sufficient factor of safety at a rim speed of 100 ft. per second if the iron is of good quality and there are no serious cooling strains. In such wheels the bending due to centrifugal force is slight, and may safely be disregarded. Rim joints midway between the arms are a serious defect and reduce the factor of safety very materially. Such joints are as serious mistakes in design as would be a joint in the middle of a girder under a heavy load. Joints made in the ordinary manner, with internal flanges and bolts, are probably the worst that could be devised for this purpose. Under the most favorable circumstances they have only about ¼ the strength of the solid rim and are particularly weak against bending. In severals joints of this character, on large fly wheels, calculation has shown a strength less then ⅛ that of the rim.

INDUSTRIAL NOTES.

The Cherokee-Lanyon Spelter Company is at work on its new smelting plant at Gas City, near Iola, Kan.

The Gates Iron Works of Chicago has closed a contract with the Lawrence Cement Company of Siegfried, Pa., for crushing machinery.

The Pittsburg Wire Company, at Braddock, Pa., is to erect a new finishing mill that will about double present capacity of its works.

The Abendroth & Root Manufacturing Company of Port Chester, N. Y., has booked orders for three large boilers for mining purposes in Mexico.

The Jones & Laughlin Company has purchased land near Pittsburg, on the south side, for a reported price of $125,000, on which additions to its steel plant will be built.

The Pennsylvania Tube Works is supplying the steel poles that will carry the wire for the new 26-mile trolley line being built from the City of Mexico to San Angel.

The Roessler & Hasslacher Chemical Company has received a gold medal for its exhibit of cyanide of potassium and other chemicals at the Trans-Mississippi Exposition at Omaha.

The Richmond (Va.) Locomotive and Machine Works has completed the order for 17 locomotives from the Finland State railways, and the shipment of the machines is to follow at an early date.

The Seibel-Suessdorff Copper and Iron Manufacturing Company, of St. Louis, is running its perforating department on orders from the lead mining districts of Missouri and neighboring States.

The Risdon Iron Works of San Francisco has placed a contract with the American Tube and Iron Company of Middletown, Pa., for pipe to be used in draining the mines in the Comstock Lode, at Virginia, Nev.

The Humphrey Machine Company, Keene, N. H., has under way in its shop three large turbines between 5 and 6 ft. in diameter, which are being equipped with a gate arranged to admit water with unusual freedom under a low head.

The Reading Iron Company, of Reading, Pa., has begun the construction of two large rolling mills. Both will be of structural iron, one 40 by 140 ft., the other 45 by 160 ft., and when completed will give employment to a large number of men.

The Jeanesville Iron Works Company of Jeanesville, Pa., through its Western office at Denver, has recently shipped the New Anchor mine at Cripple Creek a large sinking pump. It has also shipped a high lift station pump to a Leadville mine.

The Taylor Iron and Steel Company, of High Bridge, N. J., has just received an order for 200 manganese steel mine car wheels for the Delaware & Hudson Coal Company. The Taylor Company is finding a growing demand for its manganese steel for railroad work.

The Colorado Iron Works Company is shipping a silver-lead smelter 42 by 120 in. to William Ousley, Twin Bridge, Mont., a carload of water jackets to the Arkansas Valley Smelting Company at Leadville, and a furnace 42 by 140 in. for zinc-lead smelting to Cheshire, Eng.

The Sprague Electric Company of Bloomfield, N. J., has secured a contract for constructing 48 passenger elevators, to be placed in the Central London Electric Railway. Each elevator will be capable of carrying 120 passengers. This contract is said to be valued at over $100,000.

The Raymond Brothers' Impact Pulverizer Company of Chicago has received a number of orders recently for its Vacuum Separator. The Raymond Company recently equipped plants at Staten Island and Syracuse, N. Y., and is now busy with a number of mines in the West.

The Kelley Nail and Iron Company, of Ironton, O., is making additions to its works. Sixty new wire nail machines that will cut nails from 1 to 7 ins. in length are being put in. By reason of these improvements the works, which give employment to 300 men, will add 100 men to its payroll.

It is stated that it is the intention of the Illinois Steel Company to erect large cement mills with necessary facilities for converting the slag from the company's steel mills into cement. The company recently purchased a large tract of land on the lake shore at Cheltenham for this purpose.

The J. H. Parsons Chemical Company of Chicago has increased its capital stock to $12,000. The company has during recent years given a great deal of attention to the mine trade and recently treated with success water that contained 1,755 grains total solids to a United States gallon.

The Aultman-Taylor Company, of Canton, O., is arranging to build an addition to its works. Plans are being prepared at present for a new foundry, which will have a floor space of about 12,000 sq. ft. After the plans are fully arranged the work will be pushed forward as rapidly as possible.

The Thomas Company, of Niles, O., recently organized to operate the Thomas furnace, will, it is reported, build a large addition to its plant, to be used as a foundry. The company has $100,000 capital. The incorporators are John M. Thomas, W. Aubrey Thomas, Patrick Sheehan and W. H. Otterman.

The torpedo boat "Davis," built by the Wolf & Zuicker Iron Works at Portland, Ore., made on her trial trip a speed of 23½ knots an hour, or one knot more than required by the contract. The engine forgings and all the shafting in the boat were furnished by the Bethlehem Iron Company of South Bethlehem, Pa.

The International Silver Company, the so-called Silver Plating Trust, has been incorporated under the laws of New Jersey. Capital $20,000,000; preferred stock $9,000,000, balance common stock. Incorporators, William E. Findley, Hamilton H. Durand, Alexis P. Bartlett, Frederick Dwight and John J. Treacy, of New York.

The British steamship "Sandhill" sailed from Sparrows Point, Md., November 26th with 1,800 tons of steel rails and 50 tons of fittings for Bombay, India, and the schooner "Major Pickands" sailed for Barbadoes with 1,500 tons of rails and fittings. Heretofore, it is claimed, only English-made steel rails have been used there.

The new bridge just erected for the town of Bridgeton, Me., has a clear span of 36 ft., a roadway 22 ft. wide and a sidewalk 6 ft. wide. It is of steel throughout except the floor plank, having latticed girder trusses and steel beams for the floor. The Berlin Iron Bridge Company, of East Berlin, Conn., was the contractor for furnishing and erecting the bridge.

The Schoen Pressed Steel Company, of Allegheny, Pa., is to erect an entirely separate plant, capable of turning out 40 steel cars a day, at some point in the Monongahela Valley near a steel mill having a large plate output. This has been decided upon, and the company is now looking for a location. The new plant will cost in the neighborhood of $2,000,000.

The profits for the year of the Gesellschaft fur Chemische Industrie of Basle has been 802,121 francs, against 1,279,955 francs for the preceding year. It has declared a dividend of 12%, against 18% last year. The Strassfurter Chemische Fabrik made a profit of 543,260 marks. The chemical factory of Dr. Byk declared a dividend of 86% and the Leopoldshall Chemical Works one of 5%.

The Vulcan Iron Works of San Francisco recently filled a second order from the United States Government for a Vulcan ice-making plant for the Philippine Islands, a duplicate of the Vulcan ice-making plant now in operation at Manila. The Vulcan Iron Works has also equipped the steamer "Senator" of the Pacific Coast Steamship Company with a Vulcan ice and refrigerating plant. It is now installing a similar plant on the steamer "San Jose" of the Pacific Mail Steamship Company; is filling an order for an ice machine for the Indian School at Fort Mojave, and is supplying the Mentone factory of the Union Ice Company with ammonia fittings, mineral wool, etc.

The East India Company of Amsterdam, Holland, has sent the Riter-Conley Manufacturing Company of Pittsburg, Pa., an order for another tank for storing crude petroleum. The specifications call for a tank 28 ft. in diameter, 15 ft. high, to be made of steel plate 1-4 to 3-16 in. thick. The order also calls for structural steel framework to support the tank, and for a structural steel support for the roof, which is also to be of steel plate. The Riter-Conley Company is to furnish a steel tank for the Charlotte Oil and Fertilizer Company of Charlotte, N. C. The tank is to be made of steel plate 3-8 to 3-16 in. thick. It will be 25 ft. high and 85 ft. in diameter, and is to have a capacity of 20,000 bbls.

Work progresses on the foundations of the new universal plate mill of the Carnegie Steel Company. The site is between Munhall and Duquesne, Pa. The river elevation of the plant is slight and the foundations will be of unusual proportions. After excavations have been made and a substantial mass of furnace slag deposited, the piers will be built up to 50 ft. above the present surface. A fill will be made to the heighth of the foundations, and the mill proper will be the distance named above ground. The building is to be about 200x300 ft. and its equipment, including rollers and shears, together with the unique foundation and the building proper, is estimated to cost $750,000.

TRADE CATALOGUES.

The George V. Cresson Company of Philadelphia has issued a very complete List of Gearing, describing the various patterns of machine moulded spur, bevel and mitre gears; worms, worm wheels, racks and ratchets that the company carries in stock. The catalogue also contains some useful tables.

The firm of J. J. Ryan & Co., West Monroe street, Chicago, Ill., sends out a collection of views in and about its foundry. The firm claims to have the largest jobbing brass foundry in America, making both heavy and light castings in brass, aluminum, phospher bronze, manganese bronze, silicon bronze and gun bronze, and paying particular attention to Babbitt metal, especially its brand known as Nickel Babbitt.

The "Construction and Operation of Wire Cable Ferries" are described in a pamphlet published by the Trenton Iron Company, of Trenton, N. J. Such ferries offer a cheap means of transportation across streams where the travel is not sufficient to justify a bridge. The pamphlet gives details of construction, and incidentally sets forth the advantages of the Trenton Iron Company's patent locked wire cables.

The Jeffrey Manufacturing Company of Columbus, O., in its catalogue No. 50 describes the great variety of chain belting and steel cable elevating and carrying machinery that it manufactures. The catalogue not only contains a very complete list of parts, attachments, etc., but also contains a large number of cuts showing the various Jeffrey appliances in actual use at power houses, mills, fertilizer plants, coal docks, reduction plants, quarries and mines. It is a handy book for reference.

The Pneumatic Engineering Company, of New York, issues two pamphlets on the subject of pumping water and other fluids by the use of compressed air. One pamphlet describes the Harris compound direct air pressure pump, its construction, efficiency and use either for mines or water works; while the other pamphlet treats of the "Air Lift" and its application to driven wells, and also mentions the Halsey pneumatic pump. This pump has certain advantages for mine work, and is known to be giving good results at the Drummond colliery in Nova Scotia.

The Aultman Company of Canton, O., in its catalogue "C" describes a great variety of elevating and conveying machinery and appliances, also couplings, hangers, boxes, sheaves, pulleys, etc. The conveyors and elevators illustrated are of various types and suited to any sort of service about mines and mills. The firm manufactures crushing rolls and a variety of steel chains, including the Aultman detachable link chain. Particular attention is given to friction clutch pulleys, sheaves, gears and couplings. The pamphlet contains a number of tables on the power transmitted by gears, shafting and belts, besides a number of others useful to the stationary engineer, and has a good index.

"What is Pegamoid?" is the title of a pamphlet issued by the American Pegamoid Company of New York. The pamphlet does not answer the question as fully as inquisitive persons will desire, but it, with other pamphlets issued by the company, does show the great number of uses to which this substance can be applied. In brief, pegamoid is a colorless fluid that can be used for water proofing either canvas, leather, cloth or paper, including tracing paper and maps. It can also be applied to bright surfaces to prevent rust, and with aluminum powder makes an ornamental paint, which is said to be unaffected by acids. The substance has been known to the trade in Europe for some time and is now being introduced in this country.

The "Fairbanks" improved gas and gasolene engines are described in a neat and attractive pamphlet, issued by the Fairbanks Company, of New York City. The distinctive features of the engines are clearly shown, particularly the bronze bearings with ring oiler, the exhaust port, the throttling attachment and the lubricating device employed. The pamphlet also contains some useful information for users of gas engines generally, and is worthy of especial mention for the excellence of the illustrations. The Fairbanks Company also issues a handy pamphlet of pocket size describing the steam specialties it manufactures, including vulcanized asbestos material as used for disc valves, valve seats and packing for stop cocks; "Vulcabeston" sheet packing and gaskets, and the Hancock Inspirator. Another pamphlet issued by the company describes the Fairbanks standard scales and assay balances, while still another describes a complete line of two and four-wheeled trucks for use about mills, railroad stations and docks.

MACHINERY AND SUPPLIES WANTED.

If any one wanting machinery or supplies of any kind will notify the "Engineering and Mining Journal" what he needs he will be put in communica-

tion with the best manufacturers of the same.
We also offer our services to foreign correspondents who desire to purchase American goods, and shall be pleased to furnish them information concerning goods of any kind and forward them catalogues and discounts of manufacturers in each line.
All these services are rendered gratuitously in the interest of our subscribers and advertisers; the proprietors of the "Engineering and Mining Journal" are not brokers or exporters, nor have they any pecuniary interest in buying and selling goods of any kind.

GENERAL MINING NEWS.

ALASKA.

(From Our Special Correspondent.)

Skaguay, Nov. 12.

Pacific & Arctic Railway and Navigation Company.—This corporation is building the narrow gauge railroad from Skaguay to the international boundary. It is understood the road will connect with another that will extend to Fort Selkirk. At present the company is using 16 miles of completed track, from Skaguay harbor. Considerable freight is being transferred at $20 per ton, over an inclined railway ¼ mile long, which delivers it to the warehouse on the Brackett wagon road. The passenger rate is over 20 cents per mile.

Between 1,000 and 1,100 men are employed now on the 5 miles or road under construction over the summit. Work has begun on the 500-foot tunnel. The scale of wages is $3.30 for 10 hours, and $1 per day deducted for board.

It is not probable that the rails will be laid over White Pass before spring, for stormy weather has set in, the days are getting short, and blasting out a roadbed where the snow is falling and drifting is sure to be a slow job.

The new mining camp located this summer near Lake Atlin, British Columbia, is attracting more attention daily. Miners are bringing out small sacks of dust every week. On November 8th an old miner coming direct from Atlin via Bennett, told me of a recent discovery on a new creek 10 miles from Pine, which he calls Ruby Creek. He rocked out between $50 and $60 worth of dust in three days. He says that the bench claims are turning out the best prospects. The sledding over the trail was best last winter, and that is the period when from January 15th to March 15th prospectors can move supplies cheapest to the interior.

Freight rates from Seattle and other Puget Sound ports to Skaguay are cheaper than ever before. An agent for one of the leading steamship companies has been offering contract cargoes for our merchants at $4 per ton. The distance is about 1,100 miles.

ARIZONA.

Pinal County.

Ray.—The statements which recently appeared regarding the purchase of this group of copper claims need some correction. An option on the group has been taken by Mr. Alexander Hill, of London, England, acting for the Globe Mines Exploration Company, Limited. The property is a promising one, and the limited amount of exploration done shows a considerable quantity of ore in sight, averaging about 8% copper. The property is to be carefully and thoroughly explored; if the results are favorable a concentrating plant will be put in, as it is believed that the ore can be concentrated to about 40% copper, either for shipment or for further treatment at the mines.

CALIFORNIA.

Oil Production.—The October report of the California Oil Producers' Trustees shows that on October 1st the quantity of oil in storage was 85,236 bbls.; received during the month, 15,936 bbls.; sold during the month, 22,732 bbls., leaving a balance in storage on November 1st of 78,440 bbls., nearly all in tanks belonging to the Oil Storage and Transportation Company. The amount received for the 22,732 bbls. of oil sold was $20,249, being an average of 89.70c. a bbl. at the wells. Cost of selling and storing amounted to $1,694, leaving the net amount to be distributed $18,655, an average of 82.06c. per bbl.

Restraining Dams for Tailings.—The State Anti-Debris Association at a meeting on November 22d, considered a monthly report from Manager W. T. Phipps, calling attention to the defective state of many restraining dams in the mining regions of the State, and the consequent escape of tailings. The committee adopted a resolution calling attention to the amount of material brought down by various streams in San Pueblo and San Francisco bays, and the consequent damage to commerce. The resolution says in conclusion:

"Resolved, That the urgent attention of our Senators and Representatives in Congress be called to this report for the purpose of showing the necessity of the improvement of the tide waters around San Francisco Bay and of the tributary streams emptying therein, and also of showing the imperative necessity of preventing any further injury to the navigable waterways of California by illicit hydraulic mining operations."

Amador County.

(From Our Special Correspondent.)

Blue Lakes Water Company.—This company has notified all the mines in their district that it is ready to furnish all the water needed, and that they can start up at any time.

Calaveras County.

(From Our Special Correspondent.)

Diamond Jack.—This mine, near Felix, is being developed by C. C. Clark, who recently returned from the Sunrise Mine, at Cook's Inlet, Alaska.

Utica.—The water ditch belonging to this company has been widened from Ross Dam, at French Gulch, to the source of the main pipe on the hill back of the town.

Contra Costa County.

(From Our Special Correspondent.)

The tunnel being run by the Valley Railroad through the Coast range of mountains, in this county, has been completed 1,005 ft. on the east end and 1,510 ft. on the west end. The headings extend 43 ft. beyond the completed tunnel on the east end, and 29 ft. on the west end. The total length of this tunnel will be 5,600 ft., and at the rate of 15 ft. per day the work will be completed by June 10th. The Santa Fe Railroad, which has made arrangements to enter San Francisco over this route, will probably be running its trains by July 1st, 1899.

Kern County.

(From Our Special Correspondent.)

Armstrong.—The shaft at this mine, in the Greenhorn Mountains, has reached a depth of 125 ft. The 4-ft. vein is said to carry very high grade ore.

Comet.—This mine, on Greenhorn Mountains, is reported to have been sold to San Francisco parties, who will develop the property and put in a milling plant.

Fullers Earth.—S. S. Simon, who is developing a deposit of fullers earth near Bakersfield, has made the first shipment of two carloads to San Francisco. The supply for this section has heretofore been received from Chile.

Randsburg Chemical Reduction Works.—This company, of Los Angeles, has been incorporated with a capital of $50,000. The company propose to work ore by a secret process. Directors are: A. Granville, E. Osborn, G. R. Wilton, E. W. Gilmore, J. A. Fairchild, C. H. Morris and J. McLachlan.

Talc.—At the bottom of the 80-ft. shaft in this mine, near Woody, an ore body has been encountered said to assay $400 per ton. The property is owned by M. Forbes.

Lassen County.

(From Our Special Correspondent.)

Hayden Hill Tunnel.—This mine has been shut down until spring, owing to the difficulty of getting in supplies during the winter. The property is situated on the northeast side of Hayden Hill, at an elevation of 6,000 ft., and is considered a very promising one.

Mariposa County.

(From Our Special Correspondent.)

Mariposa Grant.—The interest of the Hobart estate and J. W. Mackay in this large body of land, which comprises agricultural lands, water rights and mines, is said to have been bonded to an English syndicate, which will commence development work on some of the mines at an early date.

Spencer.—At this mine, 6½ miles north of Mariposa, development work is progressing rapidly. The vein averages 3 ft. wide. The property is owned by Capt. A. H. Ward, of Alameda.

Nevada County.

(From Our Special Correspondent.)

North Bloomfield Gold Mining Company.—At the last meeting held by this company the following trustees were elected: J. W. C. Maxwell, J. M. Allen, S. V. Smith, J. D. Harvey and J. H. Mooser.

San Diego County.

(From Our Special Correspondent.)

Helvetia.—The large force of men at this mine, 1½ miles southeast of Julian, is to be increased. The two tunnels are down 200 and 180 ft. respectively, with a winze 80 ft. deep. This winze will be pumped out as soon as possible, the pumps are now running day and night.

Shasta County.

(From Our Special Correspondent.)

Mountain Copper Company.—At the smelters of this company, at Keswick, a large steam shovel has been installed, which does the work of more than 10 men in handling the calcined ore. The sulphur fumes and dust arising from the smouldering ores made this work so disagreeable that it was difficult to keep a force at the highest wages. The shovel works in a very satisfactory manner.

New Brunswick.—At this mine, west of French Gulch, work in the lower tunnel has been suspended on account of lack of ventilation. The owner says the ore is rich, and that he will make an upraise to the upper level very soon.

Siskiyou County.

(From Our Special Correspondent.)

Golden Eagle.—At this mine, in Scott Valley, on Indian Creek, some good ore has been encountered, and the owners will continue the development work with a large force of men.

Trinity County.

(From Our Special Correspondent.)

The Merritt estate, of Oakland, Cal., has sold 16,000 acres of land located in the Horseshoe Bend of Eel River, 25 miles from the line of the proposed Ukiah & Eureka Railroad, to a New York syndicate represented by Samuel H. Rice, of Ukiah. On this property a rich copper ledge has been discovered, said to be 1,200 ft. in length and 70 ft. in width. A large force of men will commence work at once. The purchase price is reported to be $250,000.

Blue Jay.—The lower tunnel in this mine, in Morrison Gulch, in the Coffee Creek District, which was run on the creek level, has been flooded, so as to render work impossible, but a plan has been devised to turn the creek for a distance of 800 ft. This will enable the owners not only to work in the tunnel, but to recover the gold from the gravel in the creek bed.

Don Juan and Pelletreau.—These hydraulic mines, about 8 miles below Taylor Flat, have been bonded by F. B. Gray, who intends to operate them on a large scale. Water is taken from Don Juan Creek by a ditch one mile long. The gravel banks are about 45 ft. high.

Chicago Mining and Development Company.—This company has been successfully working the Poker Bar deposits in the Trinity River, several miles below Lewiston, with a Posthethwaite dredger. The returns are unknown, but the river bed is known to be rich in gold. This dredge is said to work to perfection. Four miles of the stream are controlled by the company. Dredgers are being built for other mining companies by the Risdon Iron Works, of San Francisco.

COLORADO.

Fremont County.

(From Our Special Correspondent.)

Junior Order.—The new cyanide mill at this Bare Hills Mine is in running order, and the first clean up showed the ore to have a value of $12.60 to the ton. The vein is 24 ft. wide.

Last Chance.—The Galveston Company is sinking a large shaft in this claim, which is next to the Junior Order.

Mayflower.—The new plant of machinery is now in working order at this Bare Hills Mine, and work will be resumed December 1st.

Nellie V., Cyanide Mill.—Mr. Aberneathy, of Cripple Creek, is erecting a 50-ton cyanide mill on Four Mile Creek to treat ore from the Nellie V. Mine, in the Junior Order vein. The ore has an average of $9, and the width of the vein at this point is 16 ft.

Stamp Mill.—A large stamp mill is being erected on Four Mile Creek, three miles north of Bare Hills. It will be running January 1st.

Gilpin County.

(From Our Special Correspondent.)

W. J. Chamberlain Ore Buying Company.—This company has filed articles of incorporation. Capital stock $30,000. Nellie S. Campbell, of Ontario, Canada; W. J. Chamberlain and Frank Dillingham, of Denver, directors for the first year.

American Gold Mining and Milling Company.—Denver parties have deeded to this company the North American and American claims, and two acres of ground in Central City mining district, and local parties have deeded to the same company the Edna May claim, in Lake District.

Bringham Mining and Milling Company.—The company is to erect a 50-ton plant for low grade ores near Black Hawk. The method of treatment will be first by roasting, second by chloridizing, third by leaching, and fourth, precipitation by electrolysis, the values forming a chloride to be afterwards separated by electrical appliances. The ore will be reduced to the size of 40 mesh before roasting. The cost of the plant will be about $20,000, and the Gates Company, of Chicago, are reported to have received the contract.

Cook County.—A good body of smelting ore carrying copper and lead has been opened, carrying average values of from $75 up, and the mill ore is now averaging 3 oz. gold per cord.

Galena.—Tributers have opened up a 16-in. streak of ore, which gives values of 118.2 oz. gold and 87 oz. silver per ton. Detroit capital is working the property, and W. J. Kengel is manager.

Golden Scepter.—Omaha parties are putting up a shaft house, 25 by 40 ft., and a new plant of machinery on this property, in Vermilion District. Sinking is to start at once. The shaft shows some nice copper-iron.

Lotus.—A good grade of ore is being taken out of this property, the smelting ore running from $75 to over $200 per ton. L. Sternberger, of Denver, is the owner.

Mitchell.—Minnesota parties are figuring on starting up this property, on Quartz Hill, at an early date.

New York Mill.—A survey for a switch to the lines of the Gilpin Tramway Company has been made, and when connections are made this mill will have all the ore it can handle. F. C. Came is manager.

North American Gold Mining and Development Company.—This company, with capital stock of $100,000, will operate in this and neighboring counties, with head office in Denver. The directors for the first year are: H. R. Burk, A. Eskridge and George J. Anderson.

Notaway.—Sinking operations have begun at 465 ft., with the intention of going down 200 ft. Chicago capital is interested, and J. I. Perkins is superintendent.

Lake County.

(From Our Special Correspondent.)

Ballard.—The lessees are now opening up the rich ore shoot and shipping steadily. Something like $10,000 was taken out of the property during the past month.

Banker Mining Company.—Manager Guth says that the new pump at the 600-ft. station is in position and handling water. Prospecting has been resumed and the main drift at the 335-ft. level is being extended.

Fanny Rawlings.—Several of the owners who have inspected the strike made early in October state that the ore shoot is in places 40 to 50 ft. wide and in places 50 ft. high. It is low grade, with occasional streaks of high grade stuff. Shipments average 50 tons per day. The shoot is apparently widest at the fourth level. The shaft is down 600 ft. and is still in ore. An oxide and a sulphide body are being worked, the oxide running about $45 to the ton and the sulphide $30 to $35.

Leadville Ore Output.—The heavy tonnage continues. It is stated that the daily output is now 2,000 tons. The Arkansas Valley and the Bimetallic smelters are running full force. The former is using the roasters of the Union plant and the latter is just preparing to blow in one of the largest furnaces ever built in the camp.

Penn Mining Company.—Manager S. J. Sullivan, at present taking a short rest at his old home in Maryland, has opened up a property through the company's lease on the old Breece-Iron, from which daily shipments run about 75 tons of high grade gold ore. The mill takes the low grade stuff so long thrown away. The additional 10 stamps will be in by December 10th. It is learned that the property some time ago had produced $190,000 worth of ore, had paid for extensive surface improvements and development work and distributed $40,000 in dividends. An incline upon the ore shoot, it is said, has been run 700 ft.

Resurrection Gold Mining Company.—The company has resumed shipments from the low grade ore bodies and is handling from 125 to 150 tons a day by rail.

Rialto Leasing and Mining Company.—Relative to the strike made in this company's Pyrenees claim, Manager Estey states that the first drift which struck the ore has now run in 16 ft. and is still in ore. The mineral is low grade, but the drift is being pushed ahead to get in the richer one. A second drift has been started.

Ute & Ulay.—J. W. Newell, who with S. D. Nicholson, of Leadville, owns the stock of the company that has a long time lease on the Ute & Ulay mines at Lake City, has sold his entire interest to Mr. Nicholson, who will continue to operate the mine and will increase its output.

San Juan County.

(From Our Special Correspondent.)

Ariadne.—W. H. Stearns, who had opened up a shoot of $60 ore, and packed in winter supplies, on account of a misunderstanding with the owners has thrown up his lease, and gone to Denver. The owners will work 8 men all winter.

Evening Star.—Manager Yeckels has just encountered a wide body of shipping ore and mill dirt. At present two cars per week go to the smelter, the concentrating ore being held for a proposed mill.

Gold King.—The mill is outputting daily from 2 to 3 cars of concentrates, which go to the Omaha & Grant smelter at Durango.

Little Maud.—Substantial buildings are being erected preparatory to regular development. This is the claim in Maggie Gulch from which was taken some surface ore assaying 50 oz. gold and 2,100 oz. silver per ton.

Lucy.—A 450-ft. tunnel has been driven on the vein, and Bradfield Brothers have taken a contract for 150 ft. more. The ore is principally a free milling gold quartz.

Sound Democrat.—This well-known producer has been leased to J. T. Terry, who will send the concentrating ore to the Terry mill at Eureka.

San Miguel County.

(From Our Special Correspondent.)

Colorado Exploration Company.—This company has secured control of the Euclid Avenue group of gold lodes in Bear Creek, from E. L. Sleeper and J. W. Shane of Telluride. It has also purchased H. M. Hogg's stamp mill, in Bear Creek, and has let a contract for the erection of a wire rope tramway, 2,400 ft. long, connecting mines and mill. The mill will be overhauled and 850-lb. stamps substituted for the light ones it now contains. The group is located across the creek from the Nellie and Ella, owned by the North American Exploration Company, and the principal vein is the same size, 4 to 7 ft., has the same character of gold-bearing quartz, and carries the same average value of $20 in gold per ton. Two levels are being run on the lead. E. W. Waybright of Denver is trustee of the company.

Keystone Placer.—This property, which has lain idle since '92, is again being worked under the management of Prof. Casey, of Telluride. A large shaft is being sunk to bed rock, and the gravel increases in value. As soon as bed rock is reached some new machinery will be put in. It is the intention to handle from 5,000 to 10,000 yards of gravel daily. The placer has one of the finest water powers in the State, being so situated that the whole of San Miguel River can be utilized with a fall of 300 or 400 ft. within a distance of a quarter of a mile.

IDAHO.

Custer County.

Stanley Basin Placer.—It is stated that a dredge boat is to be built this winter to work these placers next spring.

Idaho County.

Morning Star.—A strike of high grade gold ore is reported on this group of four claims, owned by M. O'Brien, A. L. Harchelrode, I. N. Smith and J. P. Heape. The ledge is said to be of great size. It is located about 12 miles north of Buffalo Hump, and is a contact between granite and porphyry.

Lemhi County.

American Development and Mining Company.—F. W. Bacon, receiver for this Gibbonsville company has filed his report. It says: "There was produced of what is known as plate bullion $8,624, and 78.60 tons of concentrates, which, after deducting loss in cost of treatment, it is estimated, will have a net value of $2,484, making a total product for the month of $11,072. The expenses were: Pay roll, $3,840; supplies consumed, $940; ore purchased, $7,400; total expenses, $11,924, the costs exceeding the earnings by $852.30."

Green Creek Mining and Milling Company.—This company is developing claims 11 miles northeast of Grangeville. About 600 ft. of development work has been done. The vein is said to be 6 to 6½ ft. wide, with high values in gold. A 5-stamp mill is to be erected.

Pacific Dredging Company.—This company started its dredge at McNutt, on Moore Creek, and reports that the dredge worked well. The officers of the company are: H. J. Reiling, president; W. W. Tracy, vice-president; J. F. Rhodes, secretary; E. W. Gillett, treasurer. The office is in Chicago.

Shoshone County.

Humming Bird.—This company owns claims near Burke. Carbonate ore has been struck in a tunnel, and a winze sunk on it 45 ft. Work on a lower tunnel has begun at the level of George Gulch.

Klondike Mining Company.—In this company's tunnel, near Wardner, 4 ft. of carbonate ore is reported. The claim is near the Stemwinder.

KANSAS.

Allen County.

Empire Zinc Company.—W. C. Wetherell, general manager of this company, has bought 160 acres of land 2½ miles south of Iola. It is thought a smelter will be erected.

MICHIGAN.

Copper.

Adventure.—At this Ontonagon County property machinery is being put in order to begin work. The working shaft has been pumped out.

Atlantic.—Work has been resumed in the mine. The fire did but little damage.

Calumet & Hecla Mining Company.—This company has declared a dividend of $10 a share, payable December 29th to stockholders of record on November 30th. This will make $30 a share paid this year. The amount of the dividend is $1,000,000, and it will make the total amount paid in dividends to date $55,850,000.

Pawnee.—The old Lac la Belle property, in Keweenaw County, is to be reopened and worked under this name.

Tecumseh.—The new shaft is down to bed rock, after going through 101 ft. of surface. It is equipped with heavy machinery.

Union.—On this property, east of Calumet, a 3-compartment shaft has been started on the Arcadian lode. A hoist and compressor are at the mine and a boiler is in place.

Iron—Menominee Range.

Florence-Iron River Company.—In the Superior Court at Milwaukee, on November 26th, in the case of Jos. Hyman vs. the Florence-Iron River Company, it was ordered that the property of the company, which is valued at $421,000, be sold at public auction some time before January 1st. The property of the company is situated about Florence, Wis., and Stambaugh, Mich. It has been in the hands of S. T. Beatty as receiver for three years, and has not been operated at a profit. The liabilities greatly exceed the assets. Ladenburg, Thalman & Co. are the heaviest creditors.

MINNESOTA.

(From Our Special Correspondent.)

The iron ore rate case is ended, the complainants and petitioners having laid down. The fight of the railroad companies was so thorough and so replete with high class expert testimony impossible to confute, and the active petitioners having, since the inception of the case, sold their mineral properties, they felt compelled to file a note of withdrawal. At the beginning H. H. Porter, chairman of the Duluth & Iron Range Road, favored making a record case of it, so that it would be a long time before the question should be brought up again. It has been a record case, one of the most notable of its kind ever tried. The rates will doubtless remain where they are, 80c. from Mesabi, 90c. from West Vermillion, and $1 from Ely, for a long time. It is rumored that the Oliver Iron Mining Company gets a less rate than $1 from Ely, but this rumor probably arises from what might naturally be expected, and not from any other foundation.

Annual reports of the iron ore roads for the fiscal year, just filed, show: Duluth & Iron Range, surplus to date, $671,681; stock dividend of $2,500,000 paid on account of expenditures taken from surplus. Duluth, Missabe & Northern, surplus, $212,496.

Minnesota shipments are over, and are in round figures as follows: Duluth & Iron Range, 2,750,000 tons; Duluth, Missabe & Northern, 2,625,000; Eastern Minnesota, 550,000 tons; total, 5,925,000.

Judgment for $34,000 has been entered against the Ohio Mining Company. The mine itself has been sold to the Consolidated Company, and what the Ohio Company has is unknown to the public.

The new Bessemer (Rockefeller) Steamship Company's coal steamer "F. B. Morse" is making a record for speed, as she has already done in cargoes. She made the run recently through Lake Superior at 16 miles an hour, and ran up to 17 miles a part of the distance. It is expected that the Minnesota Steamship Company, a creation of the Minnesota Iron Company, will let a contract for a 450-ft. steamer before long.

MISSOURI.

Jasper County.

(From Our Special Correspondent.)

Joplin Ore Market.—The past week was marked by the sharp advance of $3 per ton in the price of zinc ore, which closed at $39.50 per ton, the highest price ever paid in the district. This jump is largely due to a falling off in the output, occasioned by bad weather the first of the week and the partial shutting down on Thanksgiving day, besides the scarcity of coal, which made it impossible for some of the big plants to run full time. There is very little surplus zinc ore in the district and it was all sold, but could not be loaded on account of the scarcity of cars. The season is at hand when the output is likely to be cut from a fourth to a third in a single week by unfavorable weather.

The output of the Eagle Mine at Belleville was the only ore that brought $39.50, but any amount sold at $38.50, and several lots sold for $39. It is conceded by the ore buyers that there will be a still further advance.

Lead ore dropped 50c. per 1,000 lbs. during the week. Little effort was made to produce lead ore and a number of big producers are holding off for higher prices. As compared with the previous week, which was the greatest ever known in the district, the output of zinc ore was less by 3,327,400 lbs., and the lead ore output also fell off 247,380 lbs., while the value was less by $48,539. During the corresponding week of 1897 zinc ore sold at $24 per ton and lead ore at $23.50 per 1,000 lbs., and there were 580 lbs. zinc ore and 606,740 lbs. of lead ore more sold than during the past week, but the value was less by $37,290. For the corresponding 47 weeks of last year the zinc ore shipments were less by 84,641,070 lbs.; the lead ore shipments greater by 6,525,070 lbs., and the value less by $2,043,011. Following are the sales of lead and zinc ores from the different camps of the district for the week ending November 26th: Joplin, zinc, 980,170 lbs.; lead, 181,320 lbs.; value, $22,421. Carterville, zinc, 908,960 lbs.; lead, 108,500 lbs.; value, $17,266. Webb City,

zinc, 453,610 lbs.; lead, 39,930 lbs.; value, $8,323. Oronogo, zinc 846,420 lbs.; lead, 15,280 lbs.; value, $15,956. Central City, zinc, 396,090 lbs.; lead, 6,260 lbs.; value, $7,459. Duenweg, zinc, 452,590 lbs., lead, 56,210 lbs.; value, $8,422. Stott City, zinc, 236,500 lbs.; value, $4,553. Galena, zinc, 2,444,910 lbs.; lead, 184,200 lbs.; value, $45,432. Aurora, zinc, 855,000 lbs.; lead, 20,000 lbs.; value, $11,215. Belleville, zinc, 120,230 lbs.; lead, 5,050 lbs.; value, $2,450. Hell's Neck, zinc, 77,950 lbs.; lead, 2,960 lbs.; value, $1,543. Carthage, zinc, 66,000 lbs.; value, $1,305. Lehigh, zinc, 48,140 lbs.; value, $839. District totals for the past week: Zinc, 7,888,570 lbs.; lead, 616,710 lbs.; value, $147,194. District totals for 47 weeks: Zinc, 406,626,600 lbs.; lead, 47,-924,280 lbs.; value, $6,201,831.

Cohn, Jillson & Company.—Sol. H. Cohn, of Logansport, Ind., has formed a partnership with F. G. Jillson, president of the Rhode Island Mortgage and Trust Company of Providence, R. I., and A. H. Bates, treasurer of the Financial Association of Topeka, Kan., have taken a lease on the Lehigh Mining Company's land and will start prospecting the land at once. Mr. Cohn will superintend the work.

Newsboy.—Since the first day of May the Newsboy Mine on the Duenweg Mining Company's land has produced over $100,000 worth of ore

Oliver & Chester Mining Company.—The company is making at present 10 tons of zinc ore each shift on the Center Valley lease near Oronogo. A boiler and other machinery is on the ground for a more modern and larger concentrating plant.

Reburta Mining Company.—This company, formerly the Tenderfoot Company, which has a 40-acre lease on the Baker land, near Prosperity, has had its lands laid out in mining lots, which will be leased to miners. The company is working one shaft at 170 ft., where it has a 20-ft. piece of ore that produces 3 tons of zinc ore and 1,000 lbs. of lead ore each shift.

Royal Blue Mining Company.—The water on the company's lease on the Margerum bottoms, near Oronogo, is now down to 100 ft. This lease two years ago was operated by Homer Sewall and others of Mansfield, O.

Yale, Cooper & Company.—The lease on four lots on the Yale & O'Brien lease in Chitwood Hollow, just west of the Cock Robin Mine, owned by F. L. Yale, Thomas Cooper, Ed and Will Hunter, was sold recently to A. W. Wilgus and party of Eastern men for $4,000.

St. Francois County.

Union Lead Company.—This company has been incorporated at St. Louis, with a paid up capital of $700,000, to mine lead, zinc and such other metals as may be found on its lands; to smelt, refine and mill the ore, and to quarry granite, marble or such other deposits as may be discovered. The franchise is to run fifty years. Directors have been elected as follows: G. W. Chadbourne, James Green, Samuel H. West, Joseph Campbell, William D. Dean, Hugh A. Crawford, D. R. Francis, Henry C. Scott, A. L. Shapleigh, D. P. Doak and J. E. McKeighan.

MONTANA.

Cascade County.

Big Seven.—This mine is reported to be the deepest at Neihart, being 1,085 ft. deep. The ore runs in both gold and silver. It is owned by the Barker Brothers.

Queen.—This company will, it is said, put up a concentrator in the spring, and the shaft will be sunk 300 ft. deeper.

Flathead County.

Keystone.—About 20 men are employed. A 10 h. p. gasoline engine furnishes power. The shaft is down 100 ft. The ledge is said to be 4 to 6 ft. wide, with a 6 to 30 in. streak of gray copper, carrying high values in silver.

Jefferson County.

East Pacific.—At this mine the surveys have been completed and a flume is being constructed preparatory to putting in an electric plant that will give 400 H. P., a part of which will be utilized at the mine and the remainder will probably be distributed to the surrounding towns and camps. It is proposed to bring electricity from the new plant to light Winston, if the necessary number of lights can be placed.

Free Coinage.—In this Lump Gulch claim it is said a prospecting shaft has shown a streak of high grade silver ore 18 in. to 2 ft. wide.

Legal Tender.—J. Grabe has taken a lease on this old Clancy mine. The property was a famous producer of silver 20 years ago.

Liverpool.—This Lump Gulch Mine has closed down.

Madison County.

Twin Bridges Smelter.—Work on this plant goes on slowly. The plant will probably be completed by the first of the year. The capacity will be 100 tons a day. The smelter will have two stacks.

Silver Bow County.

Boston & Montana Mining Company.—A dispatch from Helena, November 30th, says: "In a decision just rendered, the Supreme Court holds that a prosperous, working mining corporation cannot dispose of its entire assets without the consent of all of its stockholders. The question arose in a suit brought by James Forester and John Maginnis, representing Heinze Brothers of Brooklyn, against the Boston & Montana Consolidated Copper and Silver Mining Company, owned largely in Boston and New York. A stockholders' meeting was announced for June 6th last, in Butte, at which it was proposed to vote upon the proposition of transferring the whole of the property of the company to a corporation of the same name organized in New York.

"The plaintiffs, owning 200 shares of the stock, it appears, are the only stockholders, so far as known, who object to such transfer. They asked Judge Clancy of Butte for an injunction restraining the consenting shareholders from voting their shares in favor of the corporation. The defendants alleged that on account of the inconvenience occasioned to the large majority of the stockholders in attending meetings, which by law are required to be held in this State, and on account of the fact that the financial portion of the business is conducted in New York and Boston, a transfer of the domicile of the corporation had become a necessity.

"Judge Clancy granted the injunction, and from his order the defendants appealed. The Supreme Court yesterday upheld the lower court's ruling, and, as the decision will doubtless apply to all corporations doing business in this State, it is regarded as one of vast importance."

PENNSYLVANIA.

Anthracite Coal.

Delaware, Lackawanna & Western.—The Holden Colliery, at Taylor, is having trouble from a big flow of water.

Delaware & Hudson.—It is stated that the company has bought 500 acres of land north of Carbondale, including parts of tracts of land owned by John Williams, William Evans, Wright Mills, Patrick McGarry and Michael Coughlan.

Lehigh Valley Coal Company.—David Price and C. Anthony have been held by the court on a charge of manslaughter. They were employed at the Exeter Mine. Recently 10 men on a cage were descending the shaft, when three loaded mine cars falling from the surface crushed nine of them to death, and permanently crippled the tenth. Price was the engineer and Anthony the brakeman on a small locomotive hauling cars between the Red Ash Mine and the Exeter Breaker. They coupled on to a trip of 6 cars at the Red Ash Mine, and hauled it to the Exeter Breaker, making a flying switch as usual. The cars, instead of taking the track, which made a detour around the shaft, took the track straight for the shaft, because the switch was open, and three of them fell down the shaft upon the cage. The company contended that the engineer and his brakeman had been instructed repeatedly not to make flying switches, and that the accident was due entirely to their disobedience.

Pennsylvania Coal Company.—The washery at No. 6 shaft, near Pittston, is in operation. It is situated west of the breaker beside a large culm bank.

Philadelphia & Reading Coal and Iron Company.—The company has renewed its lease of the lands of the Girard Estate, upon which its Bear Ridge collieries are located. It is proposed to strip the earth from the Mammoth vein, on the top of the Bear Ridge, and secure the coal in that manner.

The Pottsville Bridge Works has secured the contract for the erection of an iron breaker at the Wadesville shaft of the Reading. An iron breaker is a novelty for the Schuylkill region. The only breaker of iron exclusively is that of Coxe Brothers & Company, in the Luzerne region.

Richards.—At this colliery, near Mt. Carmel, an air compressor is being put in to run an underground hoist on No. 9 vein.

Washeries.—It is stated there is not an abandoned colliery in the Schuylkill regions, where water is plentiful, at which washeries have not been erected. The combined production is from 3,000 to 4,000 tons of coal daily, varying in sizes from rice to nut. Bertolette Brothers, of Reading, are successfully operating one of these washeries at Girardville, and others are being worked at Stoddard, Gilberton, Brookwood, Mahanoy Plane, Ashland and other places. In the Lehigh and Lackawanna regions there are nearly as many washeries as there are collieries.

Bituminous Coal.

(From Our Special Correspondent.)

Johnson Coal Company.—This company, operating near Fayette City, has contracted with the Niles Manufacturing Company for a new tipple and coal hoisting plant, to be erected at its new mine, Arnold Ridge No. 2. The contract price is $50,000.

Munhall.—These mines, near Homestead, have resumed work with 300 men.

Crushed Coke.—At Scottdale the Fayette Gas Fuel Company raised the price for gas for illuminating purposes and many people in retaliation returned to coal and coke for heating purposes. Much crushed coke is used in houses in Western Pennsylvania for steam and hot air purposes. "Breeze coke," or that gathered up from the yards and screened, does well for heater purposes and is very cheap.

H. C. Frick Coke Company.—A 14-in. bore hole has been put down on the tract of coal connected with the Lemont plant of the H. C. Frick Coke Company. It is 326 ft. deep and will be used as an outlet for a mine pump which has been installed in the workings below.

McClure Coke Company.—The firebrick works of this company have resumed work, after being idle for repairs since the first of November. New grinding machinery has been installed. The plant has a capacity of 12,000 bricks a day and is the only brick plant owned by any of the coke companies in the Connellsville region. This is remarkable because of the constant demand for bricks for new ovens and for repairs upon those already constructed.

Pearsall Brothers.—The Doubleday Hill Electric Company has put in an electric pump at the Knob Hill Mine, in the Fifth Pool.

Southwest Connellsville Coke Company.—The company has begun building 26 new coke ovens at Southwest No. 3, which now has 180 bee-hive ovens. The same company is erecting a plant of 600 ovens near Uniontown. When all these are completed the firm will have 1,836 ovens in the Connellsville region. The company is an allied interest of the Illinois Steel Company and all the coke produced goes to the big furnaces at Joliet, Chicago and Milwaukee.

Tide Coal Company.—Contracts for $10,000 worth of mining machines and electrical haulage apparatus have been let by Captain W. B. Rodgers. The equipment is for the company's Monongahela River mines.

W. J. Rainey.—Rumor now has it that W. J. Rainey will begin building operations at the new coke plant of 200 ovens on the Warden tract of coal lands near Mt. Pleasant when spring opens. The contract for sinking a shaft on the tract has been let to John Angus, of Mt. Pleasant, and work on the extension of the June Bug branch of the Pennsylvania Railroad to the site of the proposed coke plant has begun at the Warden end. Rainey now has 1,845 ovens in this region, and all are active, with the exception of 200 at Mt. Braddock.

Slate.

(From Our Special Correspondent.)

Shipments.—The total roofing slate shipments over the Bangor & Portland Railway in October from the Hard Vein, Wind Gap, Pen Argyl and Bangor regions were about 70 carloads less than for the corresponding period of 1897. The Slatington and Danielsville regions show a decrease of 170 carloads.

Aleta Slate Company.—The work of stripping is progressing rapidly, and from present indications the quarry will be ready for operation early in the spring.

Bangor Excelsior.—R. S. Brown, proprietor, and a committee of the strikers held an extended conference on Monday, but without results as regards the resumption of work. The men offered to return at the old scale, but Mr. Brown informed them that he could not pay former prices, owing to the condition of the market.

Frank E. Shenton, roofing slate manufacturer at Slatedale, has failed, two executions of $8,000 each being issued against him.

Globe Hard Vein Slate Company.—The personal property of this company was sold at sheriff's sale recently to the trustees of the creditors for $136.

Jackson Slate Company.—A large piece of top will be removed from the north side of the quarry during the winter.

Prospect Slate Company.—A cave-in occurred last Saturday morning. The pump was knocked into the quarry with a large quantity of rubbish, which will require several weeks to remove.

Star Slate Company.—A monster block was hoisted on November 29th, weighing nearly 7 tons, from which 7½ squares of roofing slate were made.

Wm. Harding & Company.—This firm has stopped making slate at its Albion quarry, Pen Argyl, with the exception of one hoist. During the winter rubbish will be hoisted and the quarry put in good condition.

Chester County.

Mineral Ridge Mining Company.—This company, with $150,000 capital, proposes to develop a deposit of iron ore in West Nottingham Township. Joseph Block, of Columbia, is president.

SOUTH DAKOTA.

Lawrence County.

(From Our Special Correspondent.)

Badger.—C. A. Hallam, representing a Chicago company, which recently purchased the Rua

mine, in Squaw Creek, has bonded for his company the Badger property, in Ragged Top. The shaft is down 380 ft.

Edgemont & Union Hill Company.—William Archer and H. H. Armstead of New York City, heavy stockholders of the company, are in Deadwood. The company is to be reorganized, new officers elected and the affairs put in such a shape that active work can be done at the mines. Thorough tests have been made on ore from the Alert, Nevada and Hoodoo mines, in Strawberry Gulch. There seems to be considerable $10 ore, which is partly free-milling, about $4 being saved on the plates. The large building at Galena, intended for a 180-stamp mill, has been inclosed with steel sheeting.

Edna Mining Company.—This company has taken a lease on the South Dakota group of claims in Deadwood. Ore is being shipped to the cyanide plant.

Faust & May.—E. May has bonded the interests of the other owners in this mine in Garden City. A new hoisting plant has been purchased in Des Moines, Ia. The shaft is down 200 ft. and 400 ft. of cross-cutting have been done. Two shoots of ore have been encountered. The lower grade ore will be sent to the Garden City cyanide plant.

Garden City Cyanide Plant.—This plant, remodeled from the old chlorination works into a cyanide, has been grinding ore for 10 days. The first clean-up will be made December 1st. The company will pay $3 cash for $10 rock and grade up to $10 for $20 rock. Higher values than $20 are not wanted. The plant is working satisfactorily, and Messrs. Alexander & Dotson expect good results. Mr. Alexander was for 14 years chemist for the Kansas City Smelter.

Glit Edge.—The output has increased to 30 tons per day. The tunnel being run to strike the lower workings in the mine is nearly completed. It penetrates a shoot of pyritic ore with copper.

Portland.—Work has resumed at this old mine, at Bald Mountain. The company has been reorganized.

Spearfish Cyanide Plant.—Another clean-up has been made from this new plant. It will be enlarged to 50 tons capacity immediately.

Pennington County.

(From Our Special Correspondent.)

Gold Hill Company.—Preparations are being made by this company, which recently bought the Lucky Boy, Gold Hill, Krupp and Columbia claims in Keystone, to erect a large concentrating plant.

Maloney Property.—Mr. R. M. Maloney gets a five-months' interest in the mining ground west of the Holy Terror, for which he is reported to have paid $60,000. Men have begun to develop the ground.

Sunnyside.—The shaft, down 365 ft., will be sunk 100 ft. deeper. The main ledge is 11 ft. thick. The stamp mill is closed down waiting for ore.

UTAH.

(From Our Special Correspondent.)

Bullion and Ore Shipments.—During the week ending November 26th there were forwarded east from the different smelters and camps of the State 18 cars or 665,377 lbs. lead-silver bullion; 1 car or 41,097 lbs. copper bullion; 56 cars or 2,384,545 lbs. lead-silver ore.

Improved Mining Outlook.—There is a remarkable increase in new work for the winter in all the prominent districts. Park City and Bingham, which apparently have been asleep, increased production of the former camp, compared with the corresponding months of 1897, being mainly due to Silver King's handsome output, are waking up. Tintic holds to the promise of a month ago. Fish Springs gives signs of moving more ore in the next 3 months than during the past 9. Local smelters will have more stacks in blast in December than last year. The Mercur and Stockton regions will market larger consignments of smelter products, while the home milling of cyaniding ores at Mercur is steadily increasing.

Juab County.

(From Our Special Correspondent.)

Tintic Shipments.—During the week ending November 26th there were sent forward from the three shipping points of the district 91 cars of ore, 12 cars of concentrates and 29 bars of bullion, which were consigned by the following properties: Grand Central, 14 cars ore; Gemini, 11 cars; Bullion Beck, 10 cars; Uncle Sam and Humbug, 10 cars; South Swansea, 10 cars; Swansea, 7 cars; Ajax, 4 cars; Godiva, 4 cars; Centennial Eureka, 3 cars; Eureka Hill, 3 cars; Ruby Wedge, 1 car, and Dragon Iron, 14 cars hematite for flux. The Eureka Hill shipped 27 bars of bullion and 8 cars concentrates; Mammoth 2 bars of bullion and 4 cars of concentrates.

Centennial Eureka.—Last week 3 cars of high grade copper rock were sent out, and other shipments will follow.

Joe Bowers Extension Mining Company.—Incorporation articles were filed with the Secretary of State on November 26th. Capitalization $112,500, shares 25c.; principal office, Salt Lake City. Officers and directors are: B. F. Woodward, president; F. E. Wilson, vice-president; John T. Hodson, secretary-treasurer; J. H. Stallings and J. A. Keyte. The realty consists of Eva, Blind Nos. 1 and 2, and Glendale lode claims, near Diamond.

Mammoth.—Shaft is completed to 1,800 ft., where a station is being made. This is the deepest working in Utah. It proves the continuation in depth of the Tintic lime mineral zones. The recent strike on 600 level shows rich values in silver and copper.

South Godiva Mining and Milling Company.—Incorporation articles were filed with the Secretary of State on November 26th. Capitalization $30,000; shares 10c., with 50,000 shares set apart for treasury needs; principal office, Salt Lake City. Officers and directors are: R. G. Wilson, president; J. W. Burton, vice-president; A. L. Jacobs, secretary-treasurer; Theodore Meyer and W. H. Ryan. The realty consists of Lakeview lode claim, patented, joining Godiva on the south, on which development will be pushed during the winter.

Salt Lake County.

(From Our Special Correspondent.)

Old Telegraph.—A 50-ton concentrating plant to be put in on Bear Gulch is talked of. The first shipment of 100 tons of concentrates, from the run on 2,000 tons of Grecian Bend second class at the Dewey mill, was sent out recently. It is good concentrating mineral. A. Lavagnino, former manager of the Old Telegraph, is expected to return from Genoa, Italy, before New Year's, after an absence of nearly two years, and will probably again be connected with the management of the property.

San Juan County.

La Sal Copper Company.—Work on the company's furnace in the Paradox Valley is progressing rapidly. James N. McBride has charge of the construction, and will be manager of the mine and smelter.

Summit County.

(From Our Special Correspondent.)

Park City Shipments.—For the week ending November 26th the following smelter products were shipped through the Mackintosh sampler: Silver King, crude, 1,058,620 lbs.; Anchor, concentrates, 406,770 lbs.; Ontario, crude, 205,620 lbs.; Clark's Woodside, concentrates, 26,990 lbs. Total, 1,698,000 lbs. The shipments for the previous week were 1,796,935 lbs., and were made up as follows: Silver King, crude, 1,072,465 lbs.; Anchor, concentrates, 404,650 lbs.; Ontario, crude, 209,650 lbs.; Malone, concentrates, 18,800 lbs.; Cooney, concentrates, 72,020 lbs.; Loring, concentrates, 19,350 lbs.

Silver King.—The option on the 8 claims of the Union Company, joining Silver King ground on the west, was taken up on November 26th, for which $50,000 was paid. The deal was closed at McCornick's bank at Salt Lake City; Henry Newell, W. C. Pickard, Charles Wilkes, of Salt Lake City, and I. J. Hall, of San Francisco, representing the Union Company. The worth of this territory has been tested the past season under the bond.

Valeo.—On November 25th the annual stockholders' meeting was held at Park City. The amendment to the incorporation articles, reducing the number of directors from 7 to 5, was approved, after which Thomas Kearns, John L. Weber, Susie B. Emery, J. H. Deming and John Paradise were chosen directors for the ensuing year.

Tooele County.

(From Our Special Correspondent.)

Herschel Gold Mining Company.—An amendment to the articles of incorporation has been regularly adopted, decreasing the capitalization from $5,000,000 to $1,000,000 in $1 shares. This step was taken on account of the revenue tax in making transfers.

McKinley Gold Mining Company.—Articles of incorporation were filed with the Secretary of State on November 26th. Capitalization, $50,000; shares, 10c.; principal office is at Salt Lake City. Officers and directors: S. W. Morrison, president; J. J. Stewart, vice-president; E. W. Genter, treasurer; C. S. Kinney, secretary; Ben D. Luce, Daniel Eger and F. L. Parker. The realty consists of a group of a dozen or more claims on Lion Hill, joining the Northern Light ground. Some high grade silver has been found in the main tunnel, and development is to be advanced.

Northern Light.—The new ore uncovering in virgin ground, reported last week, is looking well. Regular shipments of smelting ore are expected soon.

WASHINGTON.

Pierce County.

(From Our Special Correspondent.)

The coal mines at Carbonado, owned by the Southern Pacific Railway, which have been producing about 38,000 tons per month, are being further developed by sinking a 500-ft. shaft diagonally down to one of the parallel veins, which are 600 ft. apart. These veins, which will be connected by a tunnel, are known to be about 3,000 ft. long and in places 5½ ft. in width.

Stevens County.

(From Our Special Correspondent.)

Alkader Group.—The No. 1 tunnel, driven to tap the vein, is in 106 ft., with about 100 further to run.

Ben Hur.—The tunnel is in 138 ft. and a drift has been driven 75 ft. on the lode. The ledge shows some improvement.

Eureka District Mining Company.—This company has its principal place of business at Portland, Ore., and was organized to operate the Little Cove, Gold Dollar, Alpine, Mammoth, Knob Hill and Mud Lake claims at Republic. The controlling interest is held by the Jonathan Bourne Syndicate of Portland. The Knob Hill mine has a good surface showing of quartz which, unlike other Eureka District claims, shows free gold by panning. The work being done consists of a tunnel and crosscut. The latter is in 126 ft. in hard porphyrite. The north drift of the Little Cove Mine is in 325 ft. The crosscut—in 300 ft. from the shaft—passed through 10 ft. of quartz to the hanging wall. The footwall was not reached, as the material cut was of unsatisfactory value.

Eureka Queen.—Work on the vein has been discontinued, and the tunnel is again being driven ahead.

Gold Harvest.—The tunnel has entered the pay shoot. The ore is 4 to 5 ft., and assays over $20 per ton. The strike is important, as the claim is the most southerly one of note in Eureka district.

Iron Monitor.—A controlling interest in this claim parallel with and east of the Republic Mine, has been sold to the principal owners of the San Poil, and a contract has been let to drive the tunnel 80 ft., more or less, to the vein. It is now in about 110 ft.

Princess Maud.—The tunnel is in 190 ft., and being driven about 4 ft. a day.

Republic Mining and Milling Company.—A winze is being sunk from the No. 2 level to connect with the No. 3 level. Upon the No. 3 drifting progresses rapidly. Some ore runs as high as $500 a ton. The machinery is in place, excepting some shafting.

San Poil.—The north drift from the No. 2 tunnel is in 48 ft., with the face in pay quartz. The south drift is in 77 ft. The quartz is 20 in. wide. It is high grade.

Tom Thumb.—The discovery shaft sunk on the vein passed into the porphyrite footwall, to a depth of 95 ft. A cross cut, through the ledge, shows 25 ft. of quartz, which assays $12 and upwards per ton. A vertical shaft is now being sunk to tap the vein about 50 ft. deeper than the crosscut. It is down 75 ft.

WEST VIRGINIA.

(From Our Special Correspondent.)

There has been considerable talk among a few labor agitators about a strike for higher wages among the West Virginia coal miners about December 1st. It is hardly likely that anything will come of this talk, as the miners are not at all well organized, and many of them seem pretty well satisfied with what they are getting.

FOREIGN MINING NEWS

AFRICA.

Rhodesia.

(From Our Special Correspondent.)

The Geelong Mine, in Rhodesia, has not made so good a showing for October as it did in September, for only 1,010 oz. of bullion (fineness not stated) were produced from 2,290 tons of ore crushed. The September result was better than this, but still low, and the directors then entered into many explanations that the first clean-up never gave so good results as subsequently, when the mill was in regular operation. With the publication of the October results they wisely refrain from explanations, but say that when the second 20 stamps are in operation the average return will be higher (though why is not quite clear). They have nearly completed a cyanide plant to treat the tailings, which are estimated to contain $6 gold per ton. It still remains doubtful whether ore of this average can pay in a remote and undeveloped country such as Rhodesia, where ordinary supplies cost fabulous prices.

CANADA.

British Columbia—Cariboo District.

Golden River Quesnelle Company.—This company completed its dam on the Quesnelle and has been working the river bottom.

Northwest Gold Dredging Company.—This company has had a bucket dredge on the Quesnelle River, near Barkerville.

British Columbia—Lillooet District.

Golden Cache Mines, Limited.—At the recent meeting of the shareholders some rather remark-

able facts about the directors of this company were brought to light. It is alleged that the directors deliberately misrepresented the condition of the property. It seems likely that the stockholders will be heavy losers.

British Columbia—West Kootenay District.

(From Our Special Correspondent.)

Slocan Ore Production.—The estimated production for this division for the current year is now placed at 35,000 tons, chiefly argentiferous lead ore, valued at about $3,500,000.

Le Roi.—The British American Corporation has finally purchased the minority interest in this mine. The minority interest represented 205,000 shares. The details have just been arranged in Spokane in the presence of Senator Turner, representing the minority interest, and T. Mayne Daly and Edwin Durant, representing the majority interest of 265,000 shares. The figures given at which the minority interest passed to the majority shareholders are $7.25 per share, which would give $1,486,250 as the price paid for the minority interest. Added to the cost of the majority interest, 265,000 shares at $6 per share, $1,590,000, the total amount thus paid by the British America Corporation is $3,076,250. There are still 30,000 shares scattered amongst small holders, and if valued at the figures given for the minority shares, $7.25, would amount to $217,500, making the total cost of the property $3,293,750. An unseemly attempt was made on the part of certain operators to bull the London market in reference to these 30,000 shares, but it seems to have failed because the financial agents who were asked to lend a helping hand discovered that the move originated with the gambling fraternity of the camp, and for this reason declined to assist.

On November 22d an official order, signed by W. W. D. Turner, president of the company, turned the property over to the British America Corporation, and put W. H. Carlyle in charge. A party of the Le Roi officials, including Col. W. W. D. Turner, Senator Turner, Frank M. Graves and Col. Redpath, came from Spokane to Rossland to arrange the details, accompanied by T. Mayne Daly and Edwin Durant, of the British America Corporation. The terms of the settlement are understood to be a first payment of $1 per share, a second payment of $3.12½ on December 31st, and a third of $3.12½, on January 31st. In the meantime the shares are en escrow in the Bank of Montreal in Rossland. Though the figures make $7.25 the price per share of the minority interest, the matte and ore at the Northfort smelter go to the minority interest. These are valued at $200,000, so that the real net price will amount to about $8.25 per share. It is understood that new directors will be elected, but the disorganization of the old Le Roi Company will not take place until the final payment is made, January 31st, 1899. Shipments will be suspended until the mine is overhauled.

C. H. Macintosh has accepted the presidency of the Le Roi Company. Edwin Durant becomes secretary-treasurer and W. A. Carlyle general manager; Nicholas Tregane remains superintendent. Shipments will not, according to Mr. Carlyle, be suspended for the present, but about 200 tons per day will be shipped to the Northport smelter. A force of 250 men will be kept at work.

Rossland Ore Shipments.—The ore shipments from Rossland mines so far this year amount to 114,000 tons.

Rossland Mines.—The output has already reached 112,000 tons, and may reach 125,000 should Le Roi shipments not be suspended. The value of the output depends largely upon the correct figures given by smelter returns. Assuming an average value of $25 per ton, the total would be $3,125,000. The figures heretofore given are gross. Other small places within the district will likely bring the gross figures up to $8,000,000 for West Kootenay, an increase of at least $1,000,000 over last year.

Iron Mask vs. Center Star.—The case will be argued on its merits before the court at Nelson, December 5th. A. H. Macneil is attorney for the Iron Mask, and A. C. Galt for the Center Star.

Sarah Lee Gold Mining Company.—This company was organized with a capital of $1,000,000 in shares of $1.00 each. The working capital is on a basis of 400,000 shares, fully paid up, and non-assessable, according to the prospectus. The officers of this company are T. Mayne Daly, president; E. W. Ruff, vice-president; Joseph B. Dabney, secretary-treasurer, and J. L. Parker, consulting engineer. The property comprises about 150 acres, known as the Porcupine Group, on Porcupine Creek, about three miles from Ymir. The development work done is stripping the ledge about 125 ft., which shows the lead to be from 8 to 10 ft. wide, a tunnel 30 ft. on the ledge and a crosscut of 100 ft.

The ledge is quartz, containing iron pyrites, galena, antimonial silver and zinc. The Hall Mine's smelter is 18 miles distant. This property is within 1½ miles of the Nelson & Fort Shepherd Railway.

COAL TRADE REVIEW.

New York. Dec. 2.

Anthracite.

There seems to be a pretty determined effort among stock brokers to boom industrial stocks, and also help the market for shares in the coal roads. The quarterly reports of the anthracite carriers do not tend to inspire confidence in their present policy, so far as satisfactory returns to the stockholders are concerned, consequently there is more need than usual for boosting their shares. This, at least, seems to be the only reason that can be given for statements that appear in financial papers in New York and certain daily papers in Philadelphia about agreements and higher prices.

It seems likely that the November output of anthracite will exceed 5,000,000 tons. The large concerns have been getting out coal and rushing it forward as fast as they could secure cars, in order to make as good a showing as possible beorder to make as good a showing as possible before the end of the current financial year. To dispose of this coal all sorts of prices have been named, with the result that the Eastern market is weaker than at any time this year.

In the West the outlook is distinctly good. Navigation has closed on the lakes, so shipments to Chicago territory must be by rail. At the head of the lakes the demand for anthracite is steady and has been stimulated by colder weather. It is said that the Duluth and Superior docks may run short of coal before spring. Trade at Milwaukee and Chicago is also working into satisfactory shape.

In the East the stormy weather, though it has helped retail buying decidedly, has not aided the market as a whole, on account of the heavy output at the mines. The scarcity of chestnut in the West, and consequent shipments into that territory, have finally made that size scarce enough at seaboard points to enable the companies to advance prices 15c. per ton. The other sizes, however, can be had on buyers' terms. Whether the advance on chestnut will hold remains to be seen, for with lake shipments ended there will be more of that size for Eastern trade. Storms have badly disorganized the carrying fleet, so that higher ocean freights are prevailing. This may lead to higher prices at Boston and Eastern points. At present good, free-burning anthracite can be had at New York f. o. b. for about these figures: Broken, $3; egg, $3.20; stove, $3.45; chestnut, $3.25; pea, $2, buckwheat, $1.65.

Notes of the Week.

The Lehigh Valley Coal Company makes the following statement for October, and the eleven months of the fiscal year, from December 1st to October 31st:

	October.	Year.
Earnings	2,234,739	$14,715,004
Expenses	2,282,150	15,687,621
Loss	$47,411	$972,616

For the eleven months there was a decrease of $412,073 in earnings, and an increase of $399,305 in expenses.

The Philadelphia & Reading Coal and Iron Company makes the following statement for October and the four months from July 1st to October 31st:

	October.	Four months.
Receipts	$2,342,422	$7,290,857
Expenses	2,239,315	6,831,608
Net earnings	$103,107	$459,249

For the four months the gross earnings show a decrease of $1,839,978; while there was a decrease of $1,679,155 in expenses.

Bituminous.

There is rather a brisk demand along the Atlantic seaboard for bituminous coal, and this demand has reduced stocks in producers' hands on the way from the mines to tidewater. It now looks as if there would be a short supply of coal in the near future for some shippers. The better demand is due not only to the cold weather of the past week, but to the large amount of coal lost in the recent storm along the New England coast. It is estimated that in Boston Harbor alone 40,000 tons of coal were lost, which consumers wanted for their immediate needs. This puts them in such condition that calls for coal are more urgent. Outside this shortage of coal at tide there is bound to be a great scarcity of vessel tonnage. This scarcity is enhanced by the fears—real and simulated—of captains that have vessels available for charter. Those vessels that escaped damage got a shaking up that their captains are likely to remember some time. Ocean freights have advanced 10c., and it is believed that they will advance 10c. more.

As regards an agreement among the soft coal roads to regulate freights from mines to tide, it is known that some weeks ago the general freight agents held a meeting to discuss the outlook for the coming year. Questions of such importance came up that the whole thing was referred to the presidents of the different roads. These have had several meetings. It is now reported that all seem desirous of coming together, but some points have arisen which have as yet prevented any agreement, and the meetings have adjourned from time to time to see if these points could not be overcome some way. The reports so far state that the Chesapeake & Ohio and Norfolk & Western are the chief transgressors this year, and that the new interests in the Baltimore & Ohio seem to be striving for a better state of things. From what we hear, some prices that have been given for the coming year on desirable business have been withdrawn. This would indicate that the meetings are having a little effect. The object of the meetings, so far as we can ascertain, is to see if the present schedule can be maintained for the coming year without the secret rebates of some kind or other that have been given so often in the past.

The call for coal from the far East is a little stronger than it was last week. Along the Sound and this side the Cape the demand is large. Before the recent storms the shipping available could hardly supply it. New York Harbor trade is in good condition, and inquiries that come in seem to show that some consumers are short on coal. The harbor trade has been somewhat embarrassed by a lack of boats, which have been driven to seek safe harbors and often damaged to some extent. Harbor freights are 5c. higher and may go up 1 or 2c. more. The smaller Sound barges apparently disappeared, at least shippers have been unable to secure them. Transportation from mines to tide has been delayed considerably by snow and bad weather. Car supply is poor. The anthracite companies have been after all the cars they could get.

In the coastwise vessel market, vessels are very scarce and in great demand. The daily press reports 35 to 40 vessels wrecked around Boston Harbor alone, and over 186 wrecked from New York to the Maine coast. Quite a proportion of these were coal laden. We quote current rates from Philadelphia as follows: Boston, Salem and Wareham, 95c.; Providence, New Bedford and the Sound, 75@80c.; Portland, Newburyport and Lynn, $1; Portsmouth, $1@$1.05, with 5 to 10c. above these figures from the further lower ports.

Prices are unsettled. It is stated that at least one company has named prices from a Chesapeake Bay port at nearly 20c. under this year's figures. The prices, however, may have been merely tentative. We quote: Clearfield, best grade, $1.65 at Philadelphia, with poorest grades down to $1.20; George's Creek, $1.65 at Baltimore; New River, $1.65 at Newport News; Pocahontas, $1.65 at Norfolk. At New York the best grades are $2.20; poorest, $1.45.

Chicago. Nov. 30.

(From Our Special Correspondent.)

Anthracite coal has been in better demand, mainly through the influence of a very cold run of weather for this time of the year. The cold has had the effect of driving a number of dealers into the market, short stocks not being an unusual condition, and, therefore, there are instances of where dealers have not had a sufficient coal on hand to supply demand. There continues much call for chestnut coal, and this sized coal is at a premium. There is not a shipper hereabouts who is not shy on nut coal, and the shortage is growing larger if anything. Business in hard coal is better to-day than it has been in a long time, and prospects are decidedly favorable for a continued activity. Chestnut coal, having the greater call, its price is not less than $4.50, while on other sizes prices are 10 to 25 cents lower.

Bituminous coal continues in active demand, contracts on most every grade being more plentiful, and as a rule for larger quantities than has been in vogue. The manufacturing plants depending on this market are doubtless to a plant very much more active than for years, as may be judged by the fact that they are buying coal for steam purposes in lots 25 to 50% more than usual. A considerable soft coal tonnage is being shipped to town, but at the present demand there is none too much being shipped from the mines, in fact, there would be much more were it not for the shortage of cars to convey coal. Prices are much firmer and an upward tendency appears to have set in.

Coke is in good demand, with prices firmer.

Pittsburg. Dec. 1.

(From Our Special Correspondent.)

Coal.—The miners of the Pittsburg District in convention unanimously decided to ask for a general advance in mining rates and the permanent establishment of the 8-hour work day at the coming Inter-State Convention of Coal Operators and Miners, to be held in Pittsburg in January. An advance in the mining rate for both pick and machine mining was asked for by the delegates from almost every mine in the entire district; the prices recommended for adoption running from 65 to 81c. per ton.

The old Burr tract of coal land, comprising 114 acres, has been purchased by James Jones; the purchase includes the coal and three acres of

surface. The property was bought from William McCrum for $5,000 cash.

Contracts for $10,000 worth of mining machines and electrical haulage apparatus have been let by Captain W. B. Rodgers, of the Tide Coal Company. The equipment is for the company's Monongahela River mines.

Local trade and consumption continues large and prices without quotable change. The river district is busy in the upper part only, comprising the Third, Fourth and Fifth pools; the latter two running on local trade exclusively, while the mines in the Third and Fourth pools are loading empties for down the river shipment. There is no rush, however, in the demand from Southern ports, and as a consequence this branch of the local trade remains in an unsatisfactory condition.

Connellsville Coke.—Trade during the week was not so active as for the preceding one; still a large business was transacted. The improved condition of the iron and steel outlook will, no doubt, be felt in this region in the near future. There are 18,904 ovens in the region, of which there are in blast 15,494, and 3,410 idle. The car supply was very deficient. Box cars were more plenty then the preceding week, but the gain was more than lost in the scarcity of open-top cars. The fear of continued car shortage will probably cause consumers to increase their orders, which will improve trade. Summary of the region shows 6,324 ovens made six days; 9,018 ovens, five days; 20 ovens, four days; 32 ovens, three days; 50 ovens, just fired, ten days; 50 ovens, the Semet-Solvay by-product plant, seven days; an average of 5.42 days, as against 5.46 days the week previous. The running orders of 78 plants in blast were as follows: The H. C. Frick Company made six days at three plants, 930 ovens; at the other Frick plants, 5,952 ovens in blast; the McClure Coke Company made six days at one plant, 82 ovens, five days at seven plants, 1,283 ovens, and two days at Diamond, just fired. The Cochran Company made six days at all plants, 635 ovens. I. L. Dillinger & Son made six days, 54 ovens, and five days at 108 ovens. W. I. Rainey made six days at all the seven plants, 1,534 ovens. The Furnace plants made six days at eight plants, 1,714 ovens. The Independents made six days at two plants, 200 ovens; five days at eight plants, 1,513 ovens.

The week's shipments were as follows: To Pittsburg, 3,050 cars; points west, 4,855 cars; sent East, 1,356 cars. Total, 9,261 cars.

Shanghai, China. Oct. 17.

(Special Report from Wheelock & Co.)

Coal.—In Japan coal there has been a very fair business done, but at a decline in prices. Ichimura, a very good steam coal, was dealt in at 780 taels per ton ex-godown, a considerable quantity having passed hands at this figure. For Kavatz, also, about the same price has been paid, and were it not for the large stocks of inferior quality we should not have had to alter quotations. Cardiff coal shows a slight inquiry, but there are no sellers except at exorbitant prices. Of Sydney Wollongong only one cargo has been sold, while stocks are sufficient for another four months, so there should be no fresh arrivals. Arrivals of all kinds of coal during the fortnight aggregated 16,943 tons. We quote per ton as follows: American anthracite, 15 taels, nominal; Welsh Cardiff, 19 taels; Australian Wollongong, steamer cargo, 11.50 taels, and other sorts, 7@7.75 taels; Japan, all contracted for; Kaiping (China), lump, 7@8 taels; mixed, 5.80@6.50 taels, and dust, 5.50 taels, nominal.

Kerosene Oil.—There has been a brisk demand for American, and a good many sales have been made at prices ranging from 1.49 to 1.60 taels for different dates of clearance. From first hands, however, there has been no business. An arrival of 70,000 cases brings stocks to 792,636 cases. Russian oil has had a good deal of attention. With 122,000 cases received on October 5th, the stocks amount to 522,000 cases. Langkat oil is quiet and stocks aggregate 97,000 cases. We quote, per case, as follows: American Devoe's, 1.60 taels; Russian Batum, Anchor Chop and Horse Chop, 1.50 taels per case, and bulk oil, 1.30 taels per two tins; Langkat, 1.45 taels per case, all one month's delivery.

SLATE TRADE REVIEW.

New York. Dec. 2.

The twelfth month has opened with heavy snow and frost, causing many quarries to complete their shut down for about three months. Already some difficulty is being experienced in moving slate on the railroad lines owing to the heavy snowdrifts, while at the properties work is confined to cleaning up rubbish heaps. At the shipping ports a congested condition prevails and many carloads of slate are waiting for steamer room to go to the British market.

At home prices are still very low, and we understand several large lots of No. 1 Bangor roofing slate of various sizes have been purchased by a dealer at $2 per square at quarry, and Albion or Jackson Bangor at $2.25. The sellers, it is said, were badly in need of money, and the buyers intend to realize on the stock by shipping it to the foreign market. We also learn that similar purchases have been made of other roofing slate recently, which makes it impossible to give actual quotations, as such buyers can easily sell at much less than the list prices given below. On the other hand, the curtailment of operations at many of the Vermont quarries and the subsequent shortage in the supply of small-sized roofing slate has rather strengthened the position of holders, who, it is said, will not sell at present prices after December 31st. Their belief is that the market will improve next year and they can then ask from 40c. to 50c. more per square.

The list of prices per square for No. 1 slate, standard brand, f. o. b. at quarries, are given below:

Prices of Roofing Slate.

Size, inches	Monson or Br'n ville.	Bangor.	Bangor Ribbon.	Alb'n, or Jackson Bangor.	Lehigh.	Peach Bottom.	Sea Gr'n.	Unfad'g Green.	Red.
		$	$	$	$	$	$	$	$
28 x 14	.....	.....	.....	.....	.....	.....	2 60	.....	.....
26 x 24	.....	.....	.....	.....	.....	.....	2.60	.....	.....
24 x 16	.....	.....	.....	.....	.....	4.75	.....	.....	.....
24 x 15	.....	.....	.....	.....	.....	4.75	.....	.....	.....
24 x 14	6.10	3.35	3.00	3.00	3.50	4.85	2.50	3.50	.....
24 x 13	.....	.....	.....	.....	.....	4.85	.....	.....	.....
24 x 12	6.60	3.35	3.00	3.00	3.50	5.00	2.60	3.50	.....
24 x 10	.....	.....	.....	.....	.....	5.00	.....	.....	.....
22 x 14	6.10	.....	.....	.....	.....	5.00	2.50	3.50	.....
22 x 13	.....	.....	.....	.....	.....	5.00	.....	.....	.....
22 x 12	6 60	3.50	3.00	3.00	3.00	5.00	2.6	3.50	..
22 x 11	6.50	3.50	3.00	3.00	3.00	5.00	2.75	3.75	.....
20 x 14	6.40	.....	.....	.....	.....	.....	2.50	3.50	.....
20 x 13	.....	.....	.....	.....	.....	5.00	.....	.....	.....
20 x 12	6 90	3.50	3.00	3 60	3.75	5.00	2.60	3.75	.....
20 x 11	6.80	.....	.....	3 25	.....	5.00	2.60	3.75	.....
20 x 10	6 80	4.00	3.25	3.25	3.80	5.10	2.75	4.00	10.50
18 x 18	.....	4.25	.....	.....	.....	.....	.....	.....	.....
18 x 14	6.50	.....	.....	.....	.....	.....	.....	.....	.....
18 x 12	6.80	3.50	.....	3.00	.....	5.00	2.60	3.50	.....
18 x 11	7.00	.....	.....	.....	.....	5 00	2.50	3.75	.....
18 x 10	7.20	4.00	3.25	3.25	3.80	5.10	2.60	4.00	10.50
18 x 9	7.10	4.00	3.25	3.25	3.80	5.10	2.60	4.00	10.50
16 x 16	7.00	4.25	.....	.....	.....	.....	.....	.....	.....
16 x 14	.....	4.25	.....	.....	.....	.....	.....	.....	.....
16 x 12	6.80	3.50	.....	3.00	.....	.....	2.50	3.50	.....
16 x 11	6.90	.....	.....	.....	.....	.....	.....	.....	.....
16 x 10	7.10	4 00	3.25	3.25	3.80	5.00	2.50	4.00	10.50
16 x 9	7.00	4 00	.....	3.25	3.80	5.10	2.25	4.00	10.50
16 x 8	7.20	4.00	3.25	3.25	3.80	5.10	2.25	4 00	10.50
14 x 14	7.00	4.25	.....	.....	.....	.....	.....	.....	.....
14 x 12	6.50	.....	.....	.....	.....	.....	2.25	.....	.....
14 x 10	6 60	3.50	3.00	3.00	3 75	.....	2.25	3 75	10.50
14 x 9	6.50	.....	.....	.....	3.40	4.85	2.25	3.75	10.50
14 x 8	6 69	3.75	3.10	3.00	3.40	4.85	2.20	4.00	10.50
14 x 7	6.40	3.75	3.10	3 00	3.40	4.85	2.15	4.00	10.50
12 x 10	5.80	3.50	..	....	.....	4.60	2.20	3.25	.....
12 x 9	5.60	.....	.....	.....	.....	4.60	2.15	3 25	.....
12 x 8	5.50	3.00	.....	3.00	3.25	4 60	2.15	3.25	9.00
12 x 7	5.00	3.00	.....	3.00	3.25	4.60	2.15	3.25	9.00
12 x 6	4.80	3 00	....	3 00	3.25	4.60	.....	3.25	8.50
11 x 10	.....	3.50	.....	.....	.....	.....	.....	.....	.....
11 x 8	4 50	.....	.....	.....	.....	.....	.....	.....	.....
11 x 7	4.00	.....	.....	.....	.....	.....	.....	.....	.....
10 x 12	.....	.....	.....	.....	.....	.....	.....	.....	4.50
10 x 11	.....	.....	.....	.....	.....	.....	.....	.....	4.50
10 x 8	4.00	.....	.....	.....	.....	.....	.....	.....	6.50
10 x 7	.....	.....	.....	.....	.....	.....	.....	.....	6.50
10 x 6	.....	.....	.....	.....	.....	.....	.....	.....	6.50
9 x 7	3.50	.....	.....	.....	.....	.....	.....	.....	.....

A square of slate is 100 sq. ft. as laid on the roof.

In Brownville and Monson delivery quotations can be had somewhat lower than above, which is also true of other brands. No. 1 Bangor are 50c. extra when full 3-16 in. thick. Purple sizes run 24 by 12 and 14 by 7, and vary from $3.75 to $4 per square. Variegated and mottled, $2.25@$2.90 per square, according to size. Intermediate sea green, sizes 24 by 14 to 18 by 10, $2.25@2.35; 16 by 12 to 16 by 10, $2.10; 16 by 9 to 14 by 8, $2 per square. Intermediate red, 14 by 7 in. and larger, $6; 12 by 6, 12 by 7 and 12 by 8 in., $5 per square, net.

The shipments of slate from Slatington and Walnutport for the week ending November 24th were somewhat less than for the previous week. In roofing slate alone there was a decrease of 705 squares. The movement for the three weeks of November included 10,491 squares of roofing slate, which compares with 13,229 squares for the corresponding period in October. The shipments of school slates and blackboards for the same time in November were less than in October.

The demand for red slate has been quite good all summer and we understand continues fairly well now. We are also informed that the Eagle quarries, at Middle Granville, are working full force and will do so throughout the winter. The stock of unfading green slate in that neighborhood is reported quite large.

Export business at New York this week has been considerably better than in any previous week during November, amounting to $27,129 and bringing the month's total to $75,106, against $79,928 in October and $93,751 in September. The exports during the month show an increase of $19,867, as compared with November, 1897. This increase is due largely to the shipments to England and Australia. The distribution of exports in the present month were as follows: United Kingdom, $63,789, of which London received $45,643; Australasia, $6,544, most of which went to Sydney; Belgium, $1,200, all to Antwerp; India, $1,206, nearly all to Bombay; South Africa, $1,130, chiefly to Cape Town; Mexico, Central and South America, $752; Holland, $350; Newfoundland, $217; Denmark, $44.

For the week ending November 30th the exports from New York were: To London, 53 carloads roofing slate ($14,633); Liverpool, 12 tons and 11 carloads roofing ($2,295); Manchester, 6 carloads roofing ($650); Melbourne, Australia, 36 cases and 75,800 pieces roofing ($2,158); Sydney, New South Wales, 128,490 pieces roofing ($3,250); Antwerp, Belgium, 124 boxes slabs ($1,200); Amsterdam, Holland, 129 cases ($150); Bombay, India, 350 cases ($1,150); Algoa Bay, South Africa, 32 cases ($221); Johannesburg, 26 cases ($45); Cape Town, 5 cases ($15); Mexico, 11 cases ($182); St. John's, Newfoundland, 6 cases ($19); total value, $27,129.

Much credit is due the representatives of quarrymen who have gone to the British market to revive and build up trade within the last two years. It is also encouraging to note that efforts are being made to open up new markets for roofing slate abroad, and we feel confident such attention will greatly benefit the industry. Just now the high freight rates are disturbing shippers to some extent and in various quarters there is talk that no room can be had to the English market at any of the ports. We also hear that a few contracts have been closed for next year's shipments both at New York and Philadelphia. Some exporters to London are not yet willing to give contracts for freight room at 13s. 6d., while for spot business steamship companies are asking 15s. to 16s. With less grain moving, however, there is a likelihood that freight rates on slate will recede somewhat.

CHEMICALS AND MINERALS.

(For current prices of chemicals, minerals and rare elements, see also page 690.)

New York. Dec. 2.

Heavy Chemicals.—Demand continues to be made for next year's supplies. There have already been some large contracts booked for bleaching powder at less than present quotations, and ranging for prime hardwood Liverpool maks from $1.50 to $1.62½, while continental makes have been offered below these figures. Domestic concentrated sal soda since the closing of the canals has become quiet. Chlorate of potash has sagged somewhat, owing to the large offerings of the American make. Imports included 1,034 csks. and 257 bbls. bleaching powder, 455 kegs chlorate of potash, 427 casks soda crystals, 170 drums and 31 casks caustic soda, 50 casks sal soda, 500 bags various soda salts, and 100 cases cyanide of potassium. Receipts of domestic goods at this port included 295 bbls., and 505 packages soda ash, 72 bbls. potash, and 529 sacks borax. Exports were 300 kegs bicarb. soda to Shanghai, 300 kegs to Yokohama, and 235 bbls. soda ash and 130 kegs bicarb. soda to Sydney.

Quotations are: Caustic soda, domestic 60%, $1.50 per 100 lbs.; 70@70%, $1.40; 76%, $1.50; all f. o. b. works; $1.55@1.65 delivered. Foreign caustic soda, high test, $1.60@1.70 delivered, according to test and quality. Powdered caustic soda, 2¾@3c. per lb. for large lots, and ¼c. more for smaller quantities, according to make and test. Alkali, domestic, 55@60c. f. o. b. works; 65@70c. delivered; foreign, B. @ M., 70@75c. Bleaching powder, English prime brands, $1.65 @$1.70 per 100 lbs.; other brands, $1.40@$1.55; Continental F. prime, $1.50@$1.65. Bicarb. soda, domestic ordinary, $1.15@$1.25 per 100 lbs. f. o. b. works. Natrona brand, $1.65; "Arm and Hammer" brand, $3.25@$3.50, less the usual discount; foreign, $2.12½@$2.25 per 100 lbs., according to brand and style of package. Sal soda, domestic, 55@60c. per 100 lbs. f. o. b. works, less the usual discounts; English, 62½@65c. per 100 lbs. Concentrated sal soda, foreign (crystal carbonate), $1.60 @$1.65 per 100 lbs.; domestic (monohydrate crystals), $1.25@$1.30 per 100 lbs.; "snowflake," $1@ $1.12½, f. o. b. Syracuse. Chlorate of potash, crystals, 9c.; powdered, 9½c. per lb. for large lots.

Acids.—A few of the very large consumers of sulphuric and muriatic acids have placed contracts for next year's delivery on the basis of $1.10, while some of the smaller users have had orders booked for limited periods in 1899. Otherwise the demand is comparatively small. The blue vitriol makers to-day are offering chiefly best grade goods at firm prices. We understand that a Western concern recently sold 700 to 800 bbls. of blue vitriol on the basis of 3½c. per lb. in the East. The export demand for this article continues good and of the shipments made 300 packages went to Buenos Ayres from this port. Imports of oxalic acid amounted to 105 casks.

Quotations per 100 lbs., New York and vicinity, are as follows: Acetic acid, commercial, No. 8, $1.35@$1.45; muriatic acid, 18°, $1.10 for drums and $1.15@$1.75 for carboys; 20°, $1.20@ $1.87½; 22°, $1.35@$2.25, according to quantity and brand. Nitric acid, 36°, $3.50@$4.75; 38°, $3.75@ $4.62½; 40°, $4@$4.87½; 42°, $4.62½@5.25. Oxalic acid, $6.50@6.75. Mixed acids, according to mix-

ture Sulphuric acid, 66°, $1.10 for drums and $1.15@$1.75 for carboys. Chamber acid, 50°, in a jobbing way, $11.50@$12 per ton f. o. b. factory. Blue vitriol (copper sulphate), $3.75 per 100 lbs. for best grades.

Brimstone.—There is more inquiry, and spot best unmixed seconds are quoted up to $21.50; no thirds available. For shipment $21 is asked for seconds and $19 for thirds. No arrivals are noted this week.

Pyrites.—The dull season is on, and no activity is looked for in deliveries until early in March next year. All rail shipments have been interfered with owing to the heavy snow, and steamer trade is similarly affected. No imports are noted, but there has been a charter of a British steamer of 2,400 tons to carry ore from Huelva, Spain, to Charleston or Savannah, Ga., at 10s. 6d., December sailing.

Spanish pyrites contain from 46% to 51% sulphur, the American from 42% to 44%, and Pilley's Island, N. F., about 50%. Quotations are: American lump ores (basis 42%), $3.25 per long ton f. o. b. mines, Mineral City, Va.; $5 per long ton f. o. b. mines, Charlemont, Mass., and $6.50 per long ton for Pilley's Island, delivered in New York. Fines are $2.75 per long ton f. o. b. Mineral City, Va.; $4.25 at Charlemont, Mass., and $4.50 for Pilley's Island, delivered in New York. Spanish pyrites, 10@13c. per unit, according to percentage, delivered ex-ship New York and other Atlantic coast ports.

Nitrate of Soda.—Notwithstanding the present large holdings of consumers, sellers are asking $1.57½@$1.60 per 100 lbs. for spot goods, and up to $1.57½ for future shipments. Just now the "Verona" is discharging her cargo of about 41,000 bags, which will go directly into consumption, and another lot is expected shortly. The high quotation on future business is due to the rise in freights, which has rather limited the visible supply of nitrate of soda. On the other hand, consumers are not displaying any anxiety as to next year's supplies; in fact, they anticipate lower prices to rule then. Importers, however, are of a different opinion, and it seems they expect an improved demand which will keep prices up. The European deliveries of nitrate of soda in November were 10,000 tons less than last year, and the visible supply December 1st was 10,000 tons more than at the same time in 1897. Nevertheless, the European market is firm.

Fertilizing Chemicals.—Leading ammoniates continue quiet, while prices are practically unchanged. Sulphate of ammonia is firm, owing to the buoyancy of the foreign market, and potash salts are moving in a fair way for this time of the year. Imports noted are 4,700 bags nuriate of potash, 6,150 bags and a single lot of manure salt, 1,400 bags sulphate of potash, 747 bags sulphate of ammonia, and two lots of kainit. Exports included 330 bbls. and 360 bags of fertilizers to Hamilton, Bermuda.

Quotations are: Sulphate of ammonia, gas liquor, $2.62½@$2.65 (basis 25%). Bone, $2.52½ @$2.55 per 100 lbs. Dried blood, high grade Western, $1.77½@$1.80 per unit; New York, $1.65@$1.70 per unit. Azotine, $1.70@$1.75, basis New York. Concentrated phosphates (30% available phosphoric acid), 57½c. per unit. Acid phosphates, 13@15%, av. P_2O_5, 60@65c. per unit at sellers' works in bulk. Dissolved bone black, 17@18%, P_2O_5, $16@$16.50 per ton. Acidulated fish scrap, $10@$10½; dried $19 f. o. b. fish factory. Ammonia superphosphates, high grades, $25@$26 per ton. Tankage, high grade, $15@$16 per ton f. o. b. Chicago, $18.50@$19 at New York. Concentrated tankage, $1.45@$1.50 per unit f. o. b. Chicago; low grade, $13@$13.50 per ton. Bone tankage, $19.50@$20.50; ground bone, $24@$24.50 delivered. Bone meal, $1.40@$1.50 f. o. b. Chicago.

Phosphates.—Business is unchanged, and coastwise charters were a schooner of 505 tons from Port Royal to Baltimore at private terms; another of 944 tons from Tampa to Baltimore at $1.80, and one of 329 tons from Carteret to Wilmington at 70c. Charters for export business are very light, owing to the high freight rates, and so we note a British steamer of 1,332 tons from Fernandina or Tampa to London at 20s., January sailing. We note also that 240 bags of phosphates were imported at New York. Abroad American phosphates are quoted, c. i. f. United Kingdom or North Sea ports, at 9¼d. per unit for Florida high grade rock on spot, and 8½d. for next year's delivery; 7¼d. for land pebble and 7d. for Peace River, while Tennessee 78@80% phosphates are quoted at 7¼d. per unit. The Algerian product of 63@70% is held at 7¼d.

Quotations at New York are: Florida high grade, 75@80% rock, $8.25@$8.50 per long ton f. o. b. Fernandina. The freight rate to New York is about $1.80 per ton. Florida land pebble, 68@73%, quoted at $5.25@$6 per ton, delivered in New York. South Carolina ground rock is worth $5.50 to $5.75 per short ton, delivered in New York; undried, $3 per 2,240 lbs. f. o. b. Ashley River; hot air-dried, $3.25@$3.45 f. o. b. same place. Tennessee phosphates, $1.65@$2 f. o. b. Mt. Pleasant, according to quality.

Liverpool.

(Special Report of Joseph P. Brunner & Co.)

Trade in heavy lines of chemicals is rather lifeless as regards export business.

Soda ash is quiet, while quotations depend entirely upon market and amount of foreign competition. We quote maximum range for tierces as follows: Leblanc ash, 48%, £4 5s.@£4 10s.; 58%, £4 10s.@£4 15s. per ton, net cash; ammonia ash, 48%, £4@£4 2s. 6d.; 58%, £4 5s.@ £4 7s 6d. per ton, net cash. Bags are 5s. per ton under price for tierces. Soda crystals are selling at £2 17s. 6d. per ton, less 5% for barrels, although lower figures are accepted for some special markets. Bags are 7s. per ton under price for barrels. Caustic soda is neglected, and the nominal spot range is about as follows: 60%, £5 17s. 6d.@£6; 70%, £6 17s. 6d.@£7; 74%, £7 7s. 6d.@£7 10s.; 76%, £7 10s.@£7 12s. 6d. per ton, net cash. Bleaching powder is slow of sale for export at nominally £5 2s. 6d.@£5 5s. per ton, net cash, for hardwood packages, with limited offerings of unbarred makes. Chlorate of potash is in small compass, but there is little doing and resellers quote 3¾d. per lb., while makers ask 4@4¼d. Bicarb. soda is in moderate request, while prices vary considerably, according to market, ranging from £5 5s.@£5 15s. per ton, less 2½% for the finest quality in 1 cwt. kegs, with usual allowances for larger packages.

Sulphate of ammonia has eased off a little, owing to buyers having filled their requirements for the moment, and £10 5s. per ton, less 2½%, is about nearest value for good grey 24@25% in double bags, f. o. b. here. Nitrate of soda keeps steady, at £7 17s. 6d.@£8 per ton, less 2½% for double bags, f. o. b. here, and a moderate business passing thereat. Carb. ammonia, lump, 2¾@2⅞d. per lb.; powdered, 3@3⅛d. per lb., less 2½%.

IRON MARKET REVIEW.

New York, Dec. 2, 1898.

Pig Iron Production and Furnaces in Blast.

Fuel used	Week ending Dec. 3, 1897. F'ces.	Tons.	Dec. 2, 1898. F'ces.	Tons.	From Jan., '97. Tons	From Jan., '98. Tons.
An' racite	28	18,050	28	21,150	895,406	1,051,320
Coke.....	144	303,200	148	203,350	7,781,490	9,392,449
Charcoal.	19	5,200	20	6,125	225,745	284,346
Totals..	191	226,450	196	230,625	8,812,641	10,728,115

The iron market has begun to wake up, though the new activity is somewhat spasmodic and irregularly distributed as yet. For the closing month of the year, however, trade is very good, and the prospect is that the new year will see a very large business.

There has been a considerable movement in foundry iron, but the attempt to secure higher prices has not been successful. The existing quotations are pretty well maintained, however. In Bessemer pig some large sales are reported from Pittsburg, and generally at a slight advance. The sales of Bessemer iron are expected to continue large. The demand for basic pig is good, and in fact there has been some difficulty in placing all the orders.

Bar iron and steel are in good demand by the car-builders and others. Structural material is also somewhat more active. Prices do not advance, and some mills are still inclined to make concessions on good contracts.

Inquiries for export are on a considerable scale. It looks as if a large additional tonnage will be placed on foreign orders, provided the question of freights can be satisfactorily adjusted. Just at present freight room is hard to get.

The sensation of the market has been in steel rails. Early in the week we were told that, though the proposed rail pool had fallen through, an agreement had been concluded for division of territory, and a strict maintenance of quotations. Almost immediately, and before this statement could have the desired effect of bolstering up Federal Steel stock, there was a rush to place rail contracts. The territorial agreement—if it ever existed—was disregarded entirely, and there was a struggle between Eastern and Western mills—that is, between the Carnegie and the Federal Steel companies—to secure the business. In this the Carnegie people seem to have had much the best of it, having taken some heavy orders from Western lines, while only a few small Eastern orders have gone to Chicago. The contracts placed aggregate about 750,000 tons, nearly all heavy rails. As to prices, it is difficult to ascertain the truth. One semi-official statement is that the business has been taken between $18 and $20, but probably the average would not be far from $18 a ton at mill, and it is quite certain that some large contracts were taken below that figure.

The placing of so large an amount of business indicates plenty of work for the rail mills next year. Several of the more important Eastern companies have not yet let their contracts for 1899. The Pennsylvania orders will doubtless go as usual to the mills along the line of the road.

A notable feature is the general tendency to use heavier rails. The tonnage now placed is largely in sections from 70 lbs. up to as high as 100 lbs. Besides the orders for repairs and renewals, there will probably be more new railroad building in 1899 than for several years past. An abundant supply of money and cheap rails will encourage this work.

Buffalo, N. Y. Nov. 30.

(Special Report of Rogers, Brown & Co.)

The looked for buying movement seems to be coming sooner than many expected. Ordinarily at this time of year we experience a quiet period and frequently a slight slump in prices, but this year, instead of holding up delivery to prepare for stock taking, thus throwing the iron back on furnace yards, a great many foundries in this vicinity are calling for delivery faster than originally intended. Several of the larger consumers are now looking for next year's requirements, instead of, as usual, awaiting the annual inventory and beginning of the new year before placing contracts. Prices remain firm on the basis mentioned below, on the cash basis f. o. b. cars Buffalo: No. 1 strong foundry coke iron, Lake Superior ore, $11.50; No. 2 strong foundry coke iron, Lake Superior ore, $10.75; Ohio strong softener No. 1, $11.50; Ohio strong softener No. 2, $10.75; Jackson County silvery No. 1, $14; Southern soft No. 1, $11.75; Southern soft No. 2, $11.50; Lake Superior charcoal, $12@$12.50; coke malleable, $10.75.

Chicago. Nov. 30.

(From Our Special Correspondent.)

Pig Iron.—There has been some good buying of pig iron by large concerns, one concern having purchased 5,000 tons iron, distributing the business between the Northern and Southern product. There is a good healthy run of orders, running from car loads up to 500 tons, and indications are that business will be quite brisk the coming weeks. There are furnaces that have to refuse business, they being so filled. Prices are very firm and likely to continue so. Quotations are as follows: Lake Superior charcoal, $11.50@ $13; local coke foundry, No. 1, $11.50@$12; No. 2, $11@$11.50; No. 3, $10.75@$11; local Scotch foundry, No. 1, $11.50@$12; No. 2, $11@$11.50; No. 3, $10.75@$11; Southern coke No. 1, $10.85@$11.10; No. 2, $10.60@$10.85; No. 3, $10.35@$10.60; Southern No. 1 soft, $10.85@$11.10; No. 2 soft, $10.60@ $10.85; Southern silveries, $11.25@$11.50; Jackson County silveries, $12.50@$14.50; Ohio strong softeners, $12@$12.50; Alabama car wheel, $15@$16; malleable Bessemer, $11.50@$12; coke Bessemer, $11.50@$12.

Bar Iron.—Orders for small quantities are numerous, and each week foot up a good total. A good sized contract is noticed here and there and others are in sight. Prices are fairly steady, though heavy contracts are booked at a trifle below quotations, which are, common iron, 1.05@ 1.10c.; guaranteed, 1.10@1.20c.

Steel Rails.—Orders are good for light rails, such rails bringing $20@$21. Business in heavy sections is yet at a standstill, the mills not yet having reached an agreement.

Billets and Rods.—Business in both billets and rods is at a standstill, the mills hereabouts being unable to book orders an account of being overrun with work. Billets continue to be quoted at $16.50, and rods, $22.50.

Philadelphia. Dec. 2.

(From Our Special Correspondent.)

Pig Iron.—It has been made evident during the last few days that the larger consumers of pig iron do not intend to wait until after the holidays to protect themselves with sufficient supplies of iron. The action of the larger buyers is likely to stimulate action on the part of smaller ones. Should this lead to a general stocking up, it is hard to say what modification in prices might be brought about in January. Some buyers confess to have been taken by surprise. The makers of the finer grades of iron have been favored with large orders, and they say that they can get more business if they want it. It is safe to say, however, that an advance in prices would stop big buying. The large transactions in basic have called particular attention to this kind of iron by those who use it. The run has extended to all kinds of iron, and the activity is likely to continue for some time. In other words, the pig iron consumers will cover now and take no chances. Quotations are as follows: No. 1 X foundry, $11.75@$12.25; No. 2 X foundry, $10.75@$11.25; No. 2 plain, $10.50; standard mill irons, $10@$10.25; ordinary, $9.75; basic, $10; Bessemer, $12@$12.50, and low phosphorus, $16.50@$17.

Billets.—Representatives of manufacturers think they have reason for saying that there will be a big and a sudden demand for billets. The low condition of stocks would appear to bear out this probability. More business, however, has been done than has reached the newspapers. Quotations, $17.

Merchant Bars.—There is no reaction, but the amount of business reaching the bar mills does not satisfy the hungry manufacturers. Car

builders are buying and will be large buyers later on. The stove trade throughout the country districts is good. Common bars, 1.05c.; refined, 1.10@1.15c.; soft steel, 1.15@1.20c.; special bars, 1.20@1.30c.

Skelp.—The market has been quiet for a few days. Manufacturers are on the alert for business, but have not been able or felt willing to offer particular inducements.

Sheets.—New work is backward. Old orders are being rapidly cleaned up. All mills will be ready for business by the close of the year, and the possibility is recognized of more advantageous terms being offered, but manufacturers do not think so.

Merchant Steel.—Quotations were made yesterday and to-day on extensive requirements, but they were at full private prices. The representatives are not permitted to make special quotations without consulting, and this does not do much good at present figures.

Pipes and Tubes.—This branch of the iron trade continues exceptionally firm. A large amount of business has been done during the past month. Users are quite willing to arrange for deliveries in advance. Tube work is particularly strong and good prices are the rule.

Plates.—This is our dull season, but it would never be suspected at the mills. Small buyers find they can be accommodated a little sooner and large consumers are not inclined to order so hastily. Prices are as follows, all delivered at seaboard or equivalent: Ordinary plates and universals, 1.30@1.35c.; flange, 1.50@1.60c.; fire-box, 1.75@2.50c. Fire-box is a very active commodity at present.

Structural Material.—The situation is about the same as for several weeks past. The capacity is such and the competition also, that large buyers do not decognize it necessary to hasten in contracts. Those qualified to speak are quite confident that business will keep mills comfortably engaged. Angles are 1.25@1.35c.; beams and channels, 1.40@1.50c.

Steel Rails.—Business has been done on a large scale within six or eight days, at $17.50 on large lots and $18@$18.50 on smaller lots. A number of orders for light sections have also been placed. It is impossible to obtain definite statements as to sales.

Old Rails.—More old rails are selling, and prices remain firm at about $13, though it is claimed better prices have been realized in some cases. Steel rails, $10.50, but little doing.

Scrap.—There is a fair movement in heavy scrap and there is not as much to be had as wanted. The scrap dealers sized up the situation quite accurately early in the season and are reaping the advantages of their foresight. Iron axles are $15; steel, $12; but in some cases higher figures were paid. Car wheels are quoted at $10.

Pittsburg. Dec. 1.

(From Our Special Correspondent.)

Pig-Iron.—Notwithstanding some parties report a dull market, the Bessemer sales last week reached 50,500 tons. The sales of all description exceeded 75,000 tons. This does not look like a dull market. There is one sale of 10,000 tons Bessemer for the first quarter in 1899 at $10.40, being an advance of 20@25c. Among the things to be considered are the probabilities in regard to the volume of business during the coming year. Here, again, we are confronted with an unknown quantity, but there is a fairly substantial basis for estimates, because the country was never in as good financial condition as it is at present; the benefits arising from these improved conditions have not as yet been fully realized; as they begin to be realized it means more business from the top all the way down to the bottom. Until the bone and sinew of the country begins to realize and disburse their pensions, the country has not by any means reached the full height of its prosperity. So far as rates to the home trade, therefore, there is nothing to detract from the favorable conditions which now prevail, but very much to encourage the belief that 1899 will be as far ahead of 1898 as 1898 was of 1897.

Then, again, we now have the world for our market. Europe is overwhelmed with business, and its capacity for making iron and steel strained as it never was before. Practically new worlds are being opened to trade. Apart from our own country, there is business everywhere.

Finished Material.—The situation is practically the same as it was a week ago. Mills are quite busy and are receiving a fair amount of orders, but not equal in volume to those that are being finished up, prices are the same as those previously reported.

Ferro-manganese is in regular demand; prices are well maintained. Sales of inspected delivered, $50 for 80%.

Old rails and scrap material are in fair demand; the weekly transactions show a good volume of trade.

Wrought Iron and Steel Pipe.—Business continues liberal for the season; all plants are running full, pipe being shipped as fast as made and stock not accumulating.

Wire Nails.—Business was only moderate; the season for activity being over for the present. Transactions were made at $1.25 for large lots, $1.30@$1.35 for car-lots.

Latest.—The market continues to show a good demand for iron, and when parties purchase 5,000 and 10,000 tons of Bessemer at an advance it shows increasing confidence; the undertone of the market is growing stronger. The week's sales of Bessemer were large, being generally at an advance. Sales, Pittsburg, $10.25@$10.40, the latter figure for the first quarter of the New Year. Valley Bessemer is firmer, sales being made at $9.75@$9.85. Mill iron steady, with fair demand. Sales, Pittsburg, $9.25@$9.30. Billets, demand moderate at $15.40@$15.60. Foundry iron demand light, prices unchanged. Steel wire rods sales $21.45. Business outlook excellent.

COKE SMELTED LAKE AND NATIVE ORE.

Tons.	Cash.
10,000 B , J., F., M., P	$10.40
5,000 B., J., F., P.	10.25
4,000 B., D., J., P.	10.20
4,000 B., D., J., P.	10.25
4,000 B., D., F., M., V.	9.85
3,000 B., D., J., V	9.80
3,000 B., J., P	10.35
3,000 B., J., F., P.	10.30
3,000 B., J., P.	10.25
3,000 B., J., F., P.	10.30
2,500 B , J., F., V.	9.75
2,000 B., D., J., P.	10.20
2,000 B., J., F., M., P.	10 35
1,500 B., D., V	9.75
1,500 Mill Iron, D., P.	9.25
1,000 Mill Iron, N., D., P.	9.25
1,000 Mill Iron, D., P.	9.30
500 B., delivered, V.	10.00
500 Mill Iron, del., P.	9.35
250 Mill Iron, P.	9.25
100 No. 2 F'dry, P.	10.25
50 No. 2 F'dry, P.	10.15
25 No. 2 F'dry, P	10.25

BLOOMS, BILLETS, SLABS.

2,000 Blts., Deliv., P.	$15.40
1,800 Blts., Deliv., P.	15.60
1 750 Blts., Deliv., P.	15.45
1,000 Blts., Deliv., P.	15.50
500 Blts., Deliv., P.	15.40

SHEET BARS.

2,000 Delivered, P.	$16.75
1,500 Delivered, P.	16.60
1,000 Delivered, P.	16.75

SKELP IRON.

500 Sheared, P.	$1.30 4 m.
500 W. Gr'd, P.	1.22½ 4 m.
300 N. Gr'd, P.	1.22½ 4 m.

SKELP STEEL.

Tons.	Cash.
800 Sheared, P.	$1.10 4 m.
400 W. Gr'd, P.	1.00 4 m.
400 N. Gr'd, P.	1.00 4 m.

FERRO-MANGANESE.

250 80%, imp. dlv'd, P.	$50.00
50 80%, imp. dlv'd, P.	50.00

STEEL WIRE RODS.

1,000 Delivered, P.	$21.45

MUCK BAR.

1,300 Neutral, P.	$18.50

BLOOMS. BILLETS, BAR ENDS.

500 Blt. Ends, del., P.	$10.50

CHARCOAL.

100 Warm Blast, P.	$16.50
100 Cold Blast. P.	21.50
75 Cold Blast, P.	20.50
50 No 3 F'dry, P.	14.75
50 No. 2 F'dry, P.	14.75

OLD RAIL AND SCRAP.

1,000 Iron Rails, gr., P.	$13.75
1,000 Steel Rails, gr., P.	10.00
500 Steel Rails, gr., P.	10.00
500 Melt. Stock, gr., P.	10.15
500 No. 1 W., net, P.	11.75
500 H. Steel Scrap, P.	9.00
400 Cast Scrap, gr , P.	9.00
400 Bu. Scrap, net, P.	9.00
150 Old Car W., gr., P.	10.00
100 Cast B'ngs, net, P.	6.00
100 Malleable, gr., P.	10.00
50 Cast B'ngs, net, P.	6.00

New York. Dec. 2.

The local iron market is little changed. There is a moderate and fairly steady demand. In foreign business we note, orders for $50,000 worth of mining machinery, also orders for pipe from South Africa; orders for $24,000 worth of car material from Germany, and recent shipments to England of $60,000 worth of electrical machinery and $40,000 worth of machine tools, besides large shipments of iron pipe and pipe fittings.

Steel Rails.—With the present unsettled situation, it is hard to give prices for heavy rails, but in spite of a lot of Wall Street talk, intended to help the shares of the steel companies, it is likely that most of the rails for 1899 contracts have been sold at prices much nearer $18 than $19 or $20, f. o. b. mills. We still quote: Standard sections, $18 f. o. b. mills, with girder rails, $22. Lighter rails are quoted: 12-lb., $24; 16-lb., $22; 20-lb., $22; 25-lb., $20; 30-lb., $20; 35-lb., $20; up to standard, $19; with the usual 10% advance for smaller orders; all f. o. b. mills. Track fastenings are quoted: Angle bars, 1.05@1.10c.; fish plates, 1.15c.; spikes, 1.40@1.50c.; bolts, 1.60@1.75c.

Pig Iron.—There is very little business being done locally, consequently quotations are largely nominal. Furnaces have plenty of orders ahead and any spurt in demand might advance prices. One large Northern is known to have orders booked for 70,000 tons, with but about 10,000 tons in stock. We continue to quote: Northern brands, tidewater delivery: No. 1 X foundry, $11.25@$11.50; No. 2 X foundry, $10.50@$11; No. 2 plain, $10.25@$10.50; gray forge, $9.75@$10.25. Southern brands, New York delivery: No. 1 foundry, $11@$11.25; No. 2 foundry, $10.50@$10.75; No. 1 soft, $10.75@$11; No. 2 soft, $10.50@$10.75; No. 3, $10.25@$10.50; basic, $10.25@$10.50.

Ferro Manganese and Spiegeleisen.—There is a fair amount of foreign ferro-manganese imported. It is quoted at $50. Foreign spiegeleisen is practically excluded by the tariff, but domestic is quoted at $23 buyer's mill.

Bar Iron and Steel.—There is little change in the market. The demand is fairly steady, but by no means heavy. We continue to quote for large lots on dock: common 1.05@1.10c.; refined, 1.15c. Soft steel bars, 1.10@1.20c.

Plates.—There is a fair demand for plate. It is confined mostly to small orders. Quotations are unchanged as follows: For sheared plates at tidewater, in large lots: Tank, ¼-in. and heavier, 1.25@1.30c.; 3.16-in., 1.35@1.40c.; Nos. 8, 9 and 10, 1.45@1.50c. Shell is as high as 1.35@1.40c.; flange, 1.45@1.55c.; marine, 1.60c.; firebox, 1.65@1.70c. Universals are 1.30c.;; charcoal iron plates, 2.25c. for shell, 3.75c. for flange and 3.25c. for firebox. Rivets are 2.25c. for iron, and 1.75@1.85c. for steel.

Structural Material.—The demand continues light and as yet not much has been done on next year's business. We quote for large lots at tidewater: Beams, 15-in., 1.35@1.45c.; angles, 1.25@1.30c.; tees, 1.45@1.50c.; channels, 1.40@1.50c.

Nails.—The demand for nails has fallen off a bit and wire nails can be had more cheaply. We quote for large lots on dock; cut nails, $1.30; wire nails, $1.40.

Old Material.—There is a good steady demand for all kinds of scrap. Quotations are: Old steel rails, $8.75; old iron rails, $11; old car wheels, $10; axles, $15@$16; wrought iron scrap, $10; machinery cast, $9.50; borings, $5; turnings, $6;; burnt iron, $5.25; all New York deliveries. ;

Tin Plates.—On December 1st, orders were issued by the newly formed tin plate combine closing down a large number of tin plate factories absorbed by the trust. The Consolidated Tin Plate Company is the name of the new organization. D. G. Reid is the president, with headquarters in Chicago, where the general office is situated. W. T. Graham is the vice-president, with headquarters in Pittsburg. It is understood all the mills absorbed will be transferred to the new concern December 15th, and that orders have already been issued closing down many mills a week or ten days prior to that date. Prices of tin plate have been advanced within the past week.

Cleveland, O. Nov. 30.

(From Our Special Correspondent.)

Iron Ore.—The demand for non-Bessemer ores has exceeded the supply during the past week, and the present indications are that more of that grade of ores will be wanted than can be found on the lower lake docks. As it has been the policy of the agents of the ore companies to bring down limited supplies of unsold ores, this condition of affairs is probable. The actual sales of all kinds of ore during the past ten days, however, has been small in the aggregate volume, and probably but little more will be sold until the opening of the new year. Taking the uncertain weather into consideration, the shipment of ores from the upper lake regions remains as active as possible. There still remain a few cargoes to be brought from Lake Superior ports and Escanaba. The rate from the latter port is 65c. per ton. Following are the prices of ore: Specular and magnetic ores, Bessemer quality, $3.25@$3.65; specular and magnetic ores, non-Bessemer quality, $2.50@$2.75; hematite ores, Bessemer quality, $2.55@$3.25; hematite ores, non-Bessemer quality, $2.10@$2.25.

Pig Iron.—The market has strengthened considerably during the past few days. Numerous inquiries have been made by buyers and several sales of importance, in addition to a number of minor transactions, are reported. The present indications are that buyers will be compelled to pay slightly advanced prices in the near future, especially after the first of the year. Following are the quotations, f. o. b., Cleveland: Lake Superior charcoal, $11.75; Bessemer, $10.75@$11; No. 1 foundry, $10.65@$10.75; No. 2, $10.25@$10.50; No. 1 Ohio Scotch, $10.75@$11; No. 2, $10.25@$10.50; gray forge, $9.50@$9.75.

METAL MARKET.

NEW YORK, Dec. 2, 1898

Gold and Silver.

Gold and Silver Exports and Imports

At all United States ports, October and year from Jan. 1.

	October.		Ten Months.	
	1897.	1898.	1897.	1898.
GOLD.				
Exports	$313,311	$1,279,926	$32,998,892	$14,061,849
Imports	11,775,483	16,227,358	28,386,318	143 658,095
Excess	I. $11,462,172	I. $14,947,432	E. $4,612,574	I.$129,596,246
SILVER.				
Exports	5,225,437	4,572,827	47,832,111	34,946,327
Imports	3,283,433	2,532,797	27,164,680	24,924,164
Excess	E. $1,942,014	E. $1,980,030	E $20,667,431	E.$10,022,163

This statement includes the exports and imports at all United States ports, the figures being furnished by the Bureau of Statistics of the Treasury Department.

Gold and Silver Exports and Imports, New York

For the week ending Dec. 2d, 1898, and for years from January 1st. 1898. 1897, 1896, 1895.

Period.	Gold.		Silver.		Total Excess, Exp. or Imp.
	Exports.	Imports.	Exports	Imports.	
We'k	$29,000	$152,318	$833,522	$37,604	E. $672,600
1898..	7,802,023	95,936,766	31,260,463	2,980,485	I. 59,854,765
1897..	29,730,631	43,123,577	13,578,085	2,853,802	I. 2,668,663
1896..	40,722.363	76,579,704	34,867,516	3,574,210	I. 4 564,035
1895..	64,781,077	27,546,617	36,086,103	1,575,924	E. 71,744,639

The exports of gold were to the West Indies; the imports from Europe. The silver exported

went to London; that imported came from South America.

The United States assay office in New York reports the total receipts of silver at 161,000 oz. for the week.

Financial Notes of the Week.

The special feature of the week has been the engagement of about $2,500,000 gold in London for shipment to New York. This was quickly followed by a rise in rates of interest in London and Berlin, and, it is said, by loans on sterling bills in New York; which may prevent or delay further shipments. Money continues abundant in New York.

The Treasury deficit for November was $9,558,084. This is about $5,000,000 less than the deficit in October, which was $14,352,225. This deficit does not measure the expenditures on account of the Spanish war. The receipts of the Treasury during November were $38,900,915. The customs receipts, which were $15,335,201, are the largest of any November since 1890. The internal revenue receipts during November were $21,336,743, of which about $1,300,000 was from old laws.

The War Department drafts during November were $20,381,000; the Navy Department drafts were $4,676,000. The expenditures this month were swelled by the pension payments, which were $13,688,000, about $2,500,000 in excess of those of October. The gold reserve has remained nearly stationary for a long time, the amount being $241,267,547.

Under pressure of sales, silver in London declined to 27⅝d. this week. India is buying moderately, but the demand is not sufficient to enhance prices to any great extent. No signs of Spanish buying are in sight at present.

The statement of the United States Treasury on Thursday, December 1st, shows balances in excess of outstanding certificates as below, comparison being made with the statement for the corresponding date last week:

	Nov. 23.	Dec. 1.	Changes.
Gold	$240,964,588	$241,663,443	I. $698,855
Silver	7,373,289	6,733,441	D. 639,848
Legal tenders	15,699,117	14,754,970	D. 944,147
Treas. notes, &c.	983,716	1,411,798	I. 428,082
Totals	$265,020,710	$264,563,652	D. $457,058

Treasury deposits with national banks amounted to $94,641,001, a decrease of $823,748 during the week.

The statement of the New York banks—including the 66 banks represented in the Clearing House—for the week ending November 26th gives the following totals, comparison being made with the corresponding weeks in 1897 and 1896:

	1896.	1897.	1898.
Loans and discounts	$463,818,200	$594,267,500	$691,419,800
Deposits	490,634,300	659,861,500	782,729,300
Circulation	20,218,000	16,009,100	16,330,900
Reserve			
Specie	76,613,000	104,150,500	158,481,500
Legal tenders	77,457,200	83,375,800	55,558,400
Total reserve	$154,070,200	$187,526,300	$214,039,900
Legal requirement	122,658,575	164,905,375	195,682,325
Balance surplus	$31,411,625	$22,560,925	$18,357,575

Changes for the week this year were increases of $359,800 in circulation, $1,636,400 in legal tenders, and $1,690,200 in surplus reserve, decreases were $2,345,000 in loans and discounts, $3,703,600 in deposits, and $872,100 in specie.

The following table shows the specie holdings of the leading banks of the world at the latest dates covered by their reports. The amounts are reduced to dollars, and comparison is made with the holdings of the corresponding dates last year:

	1897.		1898.	
Banks.	Gold.	Silver.	Gold.	Silver.
N. Y. Assoc.	$104,150,500	.....	$158,481,500	.....
England	161,886,850	.....	161,193,660	.....
France	391,937,726	$241,946,013	366,300,400	$243,344,000
Germany	144,635,000	74,510,000	128,790,000	66,350,000
Aus.-Hun.	190,980,000	61,955,000	177,495,000	62,265,000
Spain	46,140,000	55,050,000	55,310,000	39,990,000
Belgium	14,100,000	7,050,000	14,630,000	7,315,000
Netherlands	13,145,000	33,575,000	21,575,000	33,345,000
Italy	78,635,000	10,635,000	74,335,000	11,440,000
Russia	578,480,000	20,015,000	493,745,000	17,990,000

The returns for the Associated Banks of New York are of date November 26th, the Banks of England and France November 24th, and the others are of date December 1st, as reported by the "Commercial and Financial Chronicle" cable. The New York banks do not report silver separately, but the specie carried is chiefly gold coin. The Bank of England reports gold only.

Shipments of silver from London to the East for the year up to November 17th are reported by Messrs. Pixley & Abell's circular as follows:

	1897.	1898.	Changes.
India	£4,981,656	£3,977,465	D. £1,004,191
China	333,671	545,447	I. 211,776
The Straits	442,807	360,641	D. 82,166
Totals	£5,758,134	£4,883,553	D. £874,581

Arrivals for the week, this year, were £116,000 in bar silver from New York, and £67,000 from Chile; also £9,00 in Mexican dollars from New York; total, £192,000. Shipments were £5,000 in bar silver to Calcutta, and £2,675 to Bombay; total, £7,675.

Imports of specie at San Francisco by water in October included $4,663,481 gold and $183,825 silver. For the ten months ending October 31st, the imports were:

	Gold.	Silver.	Totals.
Coin	$24,681,698	$214,940	$24,896,638
Bullion	2,501,587	1,145,399	3,646,986
Totals	$27,183,285	$1,360,339	$28,543,624

These imports were from the following sources: British Columbia, $363,530; Mexico, $2,024,532; Central America, $48,692; Hawaii, $142,092; Japan, $4,401,461; Australia, $21,560,703; miscellaneous, $2,614.

The Bureau of the Mint reports as below the coinage executed at the Mints of the United States during November, and the five months of the fiscal year, ending July 1st, 1898:

	—November.—		—Five Months.—	
Denominations.	Pieces.	Value.	Pieces.	Value.
Double eagles	135,000	$2,700,000.00	962,760	$19,255,200.00
Eagles	100,670	1,006,700.00	852,035	8,520,350.00
Half eagles	260,000	1,300,000.00	998,907	4,994,535.00
Quar. eagles	.....	.....	12	30.00
Total gold	495,670	$5,006,700.00	2,813,714	$32,770,115.00
Dollars	1,402,000	1,402,000.00	6,242,075	6,242,075.00
Half dollars	934,000	467,000.00	3,556,625	1,828,312.50
Quar. dollars	2,108,000	527,000.00	9,489,075	2,372,018.75
Dimes	3,592,597	359,259.70	12,232,582	1,223,258.20
T't'l silver.	8,036,597	$2,755,259.70	31,519,357	$11,665,664.45
5-ct. nickels.	1,506,000	75,300.00	4,898,153	244,907.65
1-ct. bronze	866,000	8,660.00	23,970,775	239,707.75
T't'l minor.	2,372,000	$83,960.00	28,868,928	$484,615.40
T't'l c'n'g'e	10,904,177	$7,845,910.70	63,201,999	$44,920,394.85

As compared with October, the total coinage was $754,930 less in November, of which $173,300 was in gold, $598,940 in silver. The minor coinage showed an increase of $17,310, prncipally in nickels.

Daily Prices of Metals in New York.

Nov.-Dec.	Sterling Exchange.	Silver. Fine oz. Cts.	Silver. London. Pence	Copper. Lake, cts. ₽ lb.	Copper. Electrolytic, ₽ lb.	Copper. Lond'n standard £ ₽ ton.	Tin, cts. ₽ lb.	Lead, cts. ₽ lb.	Spelter cts. ₽ lb.
26	4.84¾	59⅞	27⅝	13	12.75	....	18.25	3.65	5.30
29	4.84¾	59⅞	27½	13	12.70	56 10 0	18.45	3.65	5.30
29	4.84¾	59¾	27⅝	12⅞	12.60	56 10 0	18.20	3.65	5.30
30	4.84¾	59⅝	27⅞	13	12.60	56 2 6	18.25	3.65	5.30
1	4.84¾	59⅝	27⅞	12¾	12.60	56 0 0	18.20	3.62½	5.30
2	4.84¾	59⅜	27⅞	12⅝	12.60	55 17 6	18.00	3.62½	5.30

Average Prices of Metals per lb., New York.

Month.	Copper. 1898.	Copper. 1897.	Tin. 1898.	Tin. 1897.	Lead. 1898.	Lead. 1897.	Spelter. 1898.	Spelter. 1897.
Jan	10.99	11.75	13.87	13.44	3.65	3.04	3.96	3.91
Feb.	11 28	11.92	14 08	13.59	3.71	3.28	4.04	4.02
March	11.98	11.80	14.38	13.43	3.72	3.41	4.25	4.12
April	12 14	11.48	14.60	13.34	3.63	3.32	4.26	4.13
May	12.00	11.03	14.52	13.44	3.64	3.26	4.27	4.21
June	11.89	11 11	15.22	13.77	3.82	3.33	4.77	4.24
July	11.63	11.11	15.60	13.89	3.95	3.72	4.66	4.32
August	11.89	11.16	16.23	13.80	4.00	3.84	4.58	4.26
Sept.	12.31	11.30	16.03	13.98	3.99	4.30	4.67	4.18
October	12 41	11.13	17 42	13.88	3 78	4 00	4 98	4 17
Nov.	12.86	10.88	18.20	13.79	3.70	3.76	5.29	4 03
Dec	.....	10.78	.....	13 71	.....	3.70	...	3 89
Year	.....	11 29	....	13.67	.....	3.58	.....	4 12

Average Prices of Silver per oz. Troy.

Month.	1898. Lond'n Pence.	1898. N. Y. Cents.	1897. Lond'n Pence.	1897. N. Y. Cents.	1896. Lond'n Pence.	1896. N. Y. Cents
January	26.29	56.77	29.74	64.79	30.69	67.13
February	25.89	56.07	29.68	64.67	31.01	67.67
March	25.47	54.90	28.96	63 06	31.34	68.40
April	25 95	56.02	28.36	61.85	31.10	67.92
May	26 31	56.98	27.86	60.42	31.08	67.88
June	27.09	58.61	27.58	60.10	31.46	68.69
July	27.32	59.06	27.36	59.61	31.45	68 75
August	27.48	59.54	24.93	54.19	30 93	67.34
September	28.05	60.68	25.66	55.24	30.19	65 68
October	27.90	60.42	26 77	57.57	29.68	65.05
November	27.93	60.60	26 87	57.93	29.46	64.98
December	.....	.....	26.83	58.01	29.70	65.24
Year	.....	.....	27.55	59.79	30.67	67.06

The New York prices are per fine ounce; the London quotation is per standard ounce, 925 fine.

Prices of Foreign Coins.

	Bid.	Asked
Mexican dollars	$ .46½	$ .47½
Peruvian soles and Chilean pesos	.42	.43
Victoria sovereigns	4.84	4.87
Twenty francs	3.84	3.88
Twenty marks	4.73	4.78
Spanish 25 pesetas	4.78	4.84

Other Metals.

Copper.—The market has been very irregular during the last few days and prices have varied considerably. While most of the Lake companies are holding out firmly for 13c., business has been done at from 12⅞@13c., the latter price having been realized for prompt shipment, for which delivery the metal remains exceedingly scarce. Electrolytic copper also has been irregular, and we have to quote for cakes, wirebars and ingots 12.60@12.65c. and for cathodes 12.50@12.55c. After going to press last week a sale of cathodes was reported at 12.65, as referred to on our editorial page. Casting copper is neglected at 12⅜@12½c. Exports last month were very heavy, and amounted to 11,415 tons. The consumptive demand remains exceedingly good and all manufacturers are pressing producers for deliveries.

The speculative market in London has again been rather irregular, although fluctuations were not so wide as during the few preceding weeks. The market on the 28th opened at £56 15s., but reacted to £56 10s. for spot, with three months copper 2s. 6d. lower. With slight variations these prices continued until the 30th, when the market eased off somewhat, and on December 1st declined to £55 17s. 6d.@£56 for spot, and 2s. 6d. higher for three months prompt, while the closing figures to-day are £55 15s.@£55 17s. 6d., spot, with three months copper at the same price.

The reports from England are still to the effect that cash warrants remain exceedingly scarce, and in consequence, transactions in the speculative brands are somewhat restricted. For refined and manufactured we quote: English tough, £58 5s.@£59; best selected, £59@£59 10s.; strong sheets, £67; India sheets, £63; yellow metal, 5¾d.

According to our cable, the copper statistics for the second half of November show an increase of 1,000 tons.

Exports for the week were, from New York, 2,275 long tons, and from Baltimore, 1,356 tons. For the month of November the exports from New York amounted to 7,995 tons of copper, and 86 tons matte; from Baltimore, 3,373 tons copper.

Tin has been rather irregular, but closes very strong, at almost the best, 18@18⅛c., for both spot and December.

The London market opened at almost £1 higher, £84 5s., but at this figure only a few sales took place and soon £83 5s. was again reached, and at the end the tendency was rather flat, the closing prices being £82 5s.@£82 7s. 6d., spot, and £82 15s.@£82 17s. 6d., three months prompt. Statistics for the month of November show an increase of 100 tons.

Exports of zinc ore from the Atlantic ports in November amounted to 1,121 tons, and of spelter to 6 tons.

The visible supply of tin on December 1st is reported as follows in long tons, of 2,240 lbs.

	Store.	Afloat.	Totals.
London	8,385	1,826	10,211
Holland	4,344	1,283	5,627
U. S., exc. Pacific ports	2,390	3,475	5,865
Totals	15,119	6,584	21,703

This is a decrease of 1,215 tons, as compared with November 1st, and of 8,758 tons, as compared with December 1st, 1897.

Lead.—Transactions have been rather moderate, and both buyers and sellers have more or less refrained from entering the market. No material change has taken place, and we have still to quote 3.65@3.67½c. New York, and 3.52½@3.55c. St. Louis.

The foreign market is rather lower, Spanish lead being quoted £13 3s. 9d.@£13 5s., with English lead 5s. higher.

Imports of lead at New York in November are given by the Metal Exchange at 7,595 long tons, chiefly from Mexico. Exports for the same month were 3,156 tons, principally to Europe.

St. Louis Lead Market.—The John Wahl Commission Company telegraphs us as follows: Lead is dull at 3.52½c. for common, and 3.55c. for refined metal. Light trading at these rates.

Spelter.—The consumptive demand has slackened somewhat and prices would probably have sagged off more, had it not been for the reluctance on the part of producers to make any concessions in price. The recent cold spell has had a tendency to restrict production and prices for ore have advanced to $38.50@$39, the highest on record for the last two decades. We have to quote 5¼@5.15c. St. Louis, and 5.30@5.32½c. New York.

The London market has become decidedly easier, and good merchantable brands have declined to £24 and specials to £24 2s. 6d.

Antimony.—No change: Cookson's, 9¼c.; Hallett's, Japanese and U. S. Star, 8¾@8¾c.

Nickel continues on unchanged lines, and no alteration in prices can be reported. We quote for ton lots 33@36c. per lb., and for smaller orders 35½@38c. London prices are 14@16c. per lb., according to size and order.

Platinum.—Demand is steady. The metal can be had in large lots at $14.40; for smaller orders it is quoted at $15@$16 per oz. in New York. The London quotation is 58@60s. per oz. Prices are firm.

For chemical ware (crucibles and dishes), best hammered metal, current prices in New York are as follows: In lots of 250 grams or more, 56c. per gram; in lots of 100 grams, 58c. per gram; less than 100 grams, 60c. per gram; un-

manufactured platinum will be supplied in small quantities at 2c. less per gram.

Quicksilver.—The New York quotation remains $41 per flask. The London price is £7 10s. a flask, with £7 9s. named from second hands.

The Minor Metals.—Quotations are given below for New York delivery:

	Per lb.		Per lb.
Aluminum.			
No. 1, 98% ingots	.33@40c.	Bismuth	$1.40
No. 2, 90% ingots	.31@34c.	Phosphorus	45@65c.
Rolled sheets	.38c. up	Tungsten	70c.
Nickel alloy	.33&39c.	Ferro-tungsten, 60%	60c.

Variations in price depend chiefly on the size of the order.

MINING STOCKS.

Complete quotations will be found on pages 686, 687 and 688 of mining stocks listed and dealt in at:

Baltimore.	New York	Mexico.
Boston.	Philadelphia	Paris.
Cleveland.	Pittsburg.	Rossland.
Colo. Springs.	St. Louis.	Shanghai.
Denver.	Salt Lake.	Toronto.
Helena.	San Francisco.	Valparaiso.
	London.	

New York. Dec. 2.

The Mining Exchange has been doing an unsatisfactory business, notwithstanding the good intentions of some of its brokers. Consequently, on Saturday last at a meeting of the members, Mr. George A. Drake, the vice-president of the Exchange, resigned. Another meeting has been called for December 3d, to settle some differences that have arisen, and until some definite action is taken to provide for the future of the Exchange, business there will continue uninteresting. Already the stocks are suffering heavy declines.

The Consolidated Stock and Petroleum Exchange reports a better feeling in the Comstocks. These shares are advancing, on account of the operations of the Comstock Pumping Association. Consolidated California & Virginia gained 10c. during the week, closing at $1.30. Hale & Norcross was down to 90c., but rose to $1.35 asked yesterday, and closes at 5c. higher to-day. Sierra Nevada was up to $1.25 on Wednesday, and closes at 5c. less. The Comstock Tunnel securities hold around 4c.

Of the California stocks, Standard Consolidated is pressed for sale, and went off at $1.85. Brunswick sold at 10@15c.

Phoenix of Arizona dropped to 9c. bid, and 1,000 changed hands to-day at 10c.

In the Colorado contingent the Cripple Creek shares are supported by the excellent distribution of dividends during November, amounting to over $318,000, and bringing the total for the 11 months to about $2,466,000. Several of the companies have already announced dividends for December. Of the stocks quoted, Portland opened at $1.50, and after declining to $1.25, rose again to $1.30 bid, at which it closes. Elkton Consolidated fluctuated between 94c. and $1.02. Of the other stocks, Argentum-Juniata sold at 32@33c. This company reports for the quarter ending September 30th a net profit at the mine of $21,997, of which $17,302 has been used for the reduction of the indebtedness of $51,751; but the expense incurred for the electric plant, mine tools and implements has added $4,404 to the company's liabilities, making a total indebtedness of $38,853. Since October 1st the indebtedness has been still further reduced by approximately $7,000. Mollie Gibson stock is quoted at 20c. Iron Silver is around 73c., and Small Hopes, after rising to $1.30, dropped to $1.10.

Auction sales recently included $15,000 Etna Coal and Iron Company 6% bonds at 1%.

The Consolidated Kansas City Smelting and Refining Company has declared a quarterly dividend of 1½% on its common stock, payable December 15th. Transfer books close December 10th. It also authorized the payment of 1¾% on its preferred stock for the quarter ending December 31st, payable January 16th. Transfer books close January 10th.

Boston. Dec. 1.

(From Our Special Correspondent.)

The market has been much quieter this week, with a reaction in most of the speculative stocks. This was partly due to the big storm, which really put almost a stop to business for a day or two. It was quite impossible to get about on Monday, and very little was done. Everybody was employed repairing damages or trying to get somewhere. Then came the long list of wrecks and destruction, culminating in the terrible catastrophe of the "Portland."

The present reaction, however, is not a serious one, and is not expected to last. It is simply a breathing spell when a few dealers are taking profits, not a general break.

Boston & Montana is off a little, to $235, and Butte & Boston to $57. Aside from these there were few changes. Calumet & Hecla has declared a dividend of $10, but this was generally expected and therefore had very little effect. The other investment stocks are quiet, with only very slight changes in the quotations.

Like the copper stocks, Dominion Coal weakened a little, selling to-day at $31¾@$32. There is no news to affect the price. Federal Steel sold at $31½@$32, and needs a good deal of boosting to keep it there.

The gold stocks were rather neglected and sold at about the same prices as last week, Victor bringing $5½ and Pioneer $5.

November business on the Stock Exchange was the heaviest reported for any month in 1898. The sales footed up 1,749,351 shares of stock and $3,160,600 bonds. This is almost double the business in November of last year.

Salt Lake City. Nov. 26.

(From Our Special Correspondent.)

Utah mining shares continue to grow in favor and our local brokers have cause for giving thanks. During the week there were brisk fluctuations, though most of the leading shares well held the recent advance. Indications now point to higher prices, for outside buyers are sending in generous orders, and there is a good home demand.

Northern Light did a large business between wider limits. The low point was 27½c., but it reacted and closed strong, 41c. bid, 42½c. asked. Mercur is again stronger, due to inside buying and the confidence Eastern holders have in the property. Sacramento weakened on the report that the option on the control had not been taken. Geyser-Marion is unchanged. Sunshine is higher, closing this morning 63c. bid, 65c. asked. Eagle and Little Pittsburg have moved up and are firm. The latter has levied a 1c. assessment, due immediately. Daisy stands 60c. bid, 65c. asked. Omaha is in good demand at 55c. Chloride Point stands strong at last week's figures.

Grand Central did business above $7.50 and ends the week $7.60 bid, $8 asked. Bullion Beck is weak. Mammoth furnished a surprise by passing the November dividend and is weaker. Ajax appeared in better form. Some good copper gold ore was shipped this week and the mines show improvement. Lower Mammoth proved an active trader, fluctuating considerably, but closed strong at 73c. to 76c. Sunbeam stands firm at 9c. bid, 10c. asked. Swansea is at $3.60 bid, $3.90 asked. South Swansea is strong and unchanged. Emerald retains the advance, closing 16½c. bid, 17c. asked. Four Aces did business to-day at31c. Homestake has levied a ½c. assessment and the change of management is an invigorating tonic.

Dexter has sagged below $3, closing $2.85 bid, $2.90 asked. It is understood that the additional electrical power will not be available till next season, hence a smaller production is to be looked for. Dalton has made a small spurt on report of exposing considerable low-grade ore. Galena lost half the gain of last week, but closed firm. Utah is higher and is sought for. Dalton & Lark is inert. The mines are practically closed down and the management talks of energetically working the company's placer ground.

Anchor ends the week in fair form and a better bid quotation. Silver King did business at $30. Valeo has not held the advance of last week and can be had to-day at $1.40. A new board of directors will be selected to-day at Park City. Daly closed the week higher with a few orders on the market. Ontario affords nothing new. The management persistently affirms there is nothing behind the rumors of soon resuming active operations.

San Francisco. Nov. 26.

(From Our Special Correspondent.)

But little business has been done this week and stocks have been not only dull, but rather weak. The holiday had something to do with this, as we had practically only about half a week.

Some quotations noted are: Consolidated California & Virginia, $1.25@$1.35; Sierra Nevada, $1.10; Ophir, 68@70c.; Confidence, 68c.; Mexican, 27@29c.

Hale & Norcross was run up to $1.45 by purchases of stock by parties who expect to get a dividend out of the $225,000 judgment money now on deposit in the Union Trust Company's vaults. From the scramble among the lawyers and others to get a share of the money, and the fact that the Grayson board of directors will insist upon being reimbursed for their $20,000 outlay in caring for the property, the chances for an immediate dividend of any amount do not look good, but a compromise is possible at any time.

The burning of the Baldwin Hotel this week was a very general topic of discussion among brokers. Not only was it about the biggest fire we ever had in San Francisco, but the fact is recalled that it was built with money made out of Comstock shares in the old booming days. It has always been headquarters for mining men also.

Paris. Nov. 20.

(From Our Special Correspondent.)

Political anxieties at home and foreign complications still affect the stock markets most unfavorably. The war preparations are a strong disturbing element, though the danger of a conflict with England seems to have passed for the present.

The copper stocks are very well maintained, and their high course seems justified by the continued heavy consumption of the metal, and the high quotations for it. The visible supplies are at a very low point; in fact, a few years ago such small stocks would have caused almost a panic in the market.

The prices of zinc continue to advance and the companies seem to be taking full advantage of the favorable conditions. Their profits ought to be large this year. Though imports from your side continue large, all the metal offered seems to be taken up at once.

The market for the South African gold stocks has been very quiet, political affairs affecting it, in spite of the increase in gold production reported.

Le Nickel shares continue high, and there are more favorable reports. Huanchaca stock is a little better considered, and there are hopes of improved conditions at the mine.

The Government has under consideration the issue of a new colonial loan of 200,000,000 fr., the proceeds of which are to be used for the proposed railroad which is to connect Annam and Tonkin with Southern China. There are not wanting those who say that the proposed Trans-Saharan line would be of more immediate importance to France.

The foreign commerce of France for the ten months ending with October is reported by the Minister of Commerce as below:

	1897. Francs.	1898. Francs.
Imports	3,178,741,000	3,638,020,000
Exports	2,919,754,000	2,884,306,000
Excess, imports	258,987,000	743,714,000

The large increase in imports is due to the heavy purchases of grain abroad, which we have had to make this year.

A number of the holders of Cuban-Spanish bonds have held a meeting and passed resolutions, the meaning of which is that if you retain possession of Cuba you are bound to assume those bonds. I do not think, however, that anyone really expects you to do it. Even M. Leroy-Beaulieu, who is so active an advocate of Spain, admits that Cuba can hardly be held responsible for all of the so-called Cuban debt. It is a question of moment here, where so large an amount of the bonds is held. That the United States should assume any liability for them is only a faint hope and not really an expectation.

In fact there is a good deal of surprise that your commission should offer to pay a cash subsidy for the Philippines. It is this offer which has stirred up the holders of Cuban bonds. Their action is not taken seriously by those who are not interested. Zote.

MISCELLANEOUS DIVIDENDS.

National Lead Company, regular quarterly dividend of 1¾% on the preferred stock payable December 15th.

LATE NEWS.

COLORADO.

Cripple Creek.

(From Our Special Correspondent.)

Montreal Gold Mining Company.—The McClurg lease on the Fluorine claim on Copper Mountain belonging to this company has been closed down. Quite a large amount of ore has been taken from the property by the lessee, and it was from the royalties received that the company recently paid a dividend of $7.50 per 1,000 shares. The lease has been shipping since December last and is the only claim in the vicinity from which any ore of any amount has been shipped. Mr. A. A. McClurg, of Cripple Creek, has had charge of the lease.

Wilson Creek Consolidated Mining Company.—Considerable ore of good grade is being taken out of the Minnie Bell claim, belonging to this company. It comes from the extension of one of the veins passing through the Hull City placer. A new hoisting plant has recently been put in. The property is being worked under lease by Jack Ryan and others.

Gould Mining and Milling Company.—This company is attracting considerable attention just now on account of some good ore having been discovered on the Jennie Sample claim of the company. The claim is situated on Raven Hill, near the Doctor Mine, and is being worked under lease by John Smith of Anaconda. This company owns several well located claims on Raven Hill. These are the Jennie Sample, Rhinoceros, Nil Desperandum, Kittie Lane and Gold Dollar.

Midland Terminal Railway.—This road is putting in a switch to the Lillie and Vindicator and also to the Independence Townsite and Mining Company's property for loading ore.

Electric Power.—The Colorado Electric Power Company is still erecting a number of electric hoists. This kind of power seems to be becoming quite popular in this district. It is reported that the Granite Mine on Battle Mount is to be equipped with a large electric hoister. The power it to be furnished by the Moffit plant, at Goldfield.

STOCK QUOTATIONS.

NEW YORK.‡

Name of Company.	Location.	Par val.	Nov. 26. H.	Nov. 26. L.	Nov. 28. H.	Nov. 28. L.	Nov. 29. H.	Nov. 29. L.	Nov. 30. H.	Nov. 30. L.	Dec. 1. H.	Dec. 1. L.	Dec. 2. H.	Dec. 2. L.	Sales
Adams Con	Colo.	$10	.06	..	...	....	.05	..	....	....	.07	....	....	....	3,500
Ajamo	"	1	.05	....	....	....	....	....	....	....	....	....	....	....	1,000
Alice	Mont.	25	.90	....	1 09	..	.90	....	.90	....	....	....	....	....	....
American Flag	Colo.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
American Gold	"	....	.0081	.008	....	....	.008	....	008	....	....	....	....	....	....
Anaconda Gold	"	5	....	....	.60	....	....	....	61	....	.58	....	....	....	1,200
Argentum-Jun.	"	2	....	....	....	....	....	....	.32	....	.33	....	....	....	400
Best & Belcher	Nev.	3	.32	....	.37	.32	.30	....	.30	.25	.30	....	....	....	....
Belcher	"	3	.25	....	.23	.20	.20	....	.20	....	....	....	....	....	....
Breece	Colo.	25	.85	....	.90	.85	.90	.85	.90	.85	....	....	....	....	....
Brunswick	Cal.	1	.13	....	.14	.12	.10	....	.15	.10	.14	.10	....	....	....
Caledonia	S. D.	....	50	....	.50	....	....	....	5	....	.50	....	....	....	....
Cannon Ball	Colo.	1	.006	.004	....	....	....	....	.0045	.004	.0057	.003	.006	.003	18,000
Chollar	Nev.	3	.22	....	.21	.20	.24	....	.24	.21	.24	.20	....	....	....
Chrysolite	Colo.	50	.14	....	.04	.12	....	....	.04	....	.04	....	....	....	1,000
Consol't T ,b'ds	Nev.	100	.04	....	.04	....	.05	....	.04	....	.04	....	....	....	....
do. stocks	"	100	.04	....	.04	....	....	....	.04	....	.04	....	....	....	500
do. scrip	"	100	.04	....	.04	....	....	....	.04	....	.04	....	....	....	....
Con. Cal. & Va	"	2½	1.25	....	1.20	....	1.25	....	1 40	....	1.25	1.20	....	....	500
Con Imp	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Copper Rock	Colo.	1	.001	.00¾	.00⅝	....	.00⅝	....	.0025	....	.0025	....	.001	.00¾	8,000
Cr & Cr. Creek	"	1	....	....	.06	....	....	....	.04	....	.03	....	....	....	1,000
Crescent	"	10	....	....	.05	....	.05	....	.05	....	.03	....	....	....	....
Cripple Cr. Con.	"	1	.10	....	.08	....	.10	....	....	....	.08	....	....	....	1,10.
Crown Point	Nev.	3	.20	....	.20	.18	.18	....	.18	.15	.18	....	....	....	500
Deadw'd Terra	S. Dak	25	.40	....	.40	....	.45	.40	.45	....	4	.40	....	....	....
Elkton Con	Colo.	1	1.02	.98	....	....	.98	.95	.94	....	1 00	.95	....	....	200
Enterprise	"	1	.55	....	.55	....	.57	....	.57	....	....	....	....	....	....
Fath r de Smet	S. Dak	100	.16	.10	.16	.10	.16	.10	.16	.10	....	....	....	....	....
Garfiel Con	Colo	1	.13½	.12	.12½	....	.18	12½	.12	....	.14	....	.15	.12½	2,600
Golden Fleece	"	1	.25	....	25	....	.25	....	....	....	.23	....	....	....	....
Gold & Globe	"	1	.03	....	....	....	.02	....	....	....	....	....	....	....	....
Gold Magnet	"	1	....	....	....	....	....	....	.00½	....	.005	.0035	.00	.0⅛	7,000
Good Samarit'n	"	1	.008	.0074	....	....	....	....	.005	....	....	....	.0045	.004	2,000
Gould & Curry	Nev.	3	.15	....	.20	....	.16	....	.16	.15	.16	.15	....	....	....
Hale&Norcross	"	100	1.10	....	1 10	.90	1 00	....	1 20	1 10	1 35	1.00	....	....	....
Homestake	S. Dak	100	50 00	....	51.00	....	....	....	50.00	....	51.00	....	....	....	....
Horn Silver	Utah.	25	1.15	....	1 5	....	1.20	....	1 15	....	1 15	1 10	....	....	200
Iron Silver	Colo.	20	40	....	.73	....	.72	....	.75	....	.73	.73	....	....	475
Isabella	"	1	.29	.26½	26¾	....	.26	....	.26	....	....	....	.28½	.26	....
Japan	"	10	5.00	2 50	2.50	....	2.50	....	....	....	2 50	....	5 00	2 50	....
Jefferson	Colo.	1	.06¾	.06	.06	....	.07	....	.06	....	....	....	.01	.05⅞	1,500
Julia Con	Nev	1	....	....	....	....	.01	....	....	....	....	....	....	....	....
Justine	Colo.	1	.02	.01¾	.02¾	....	.02¾	....	.01⅜	.01⅝	.01⅜	.01⅝	.02¾	.01⅜	4,000
King & Pemb.	Ont.	10	.15	....	.15	.12	.15	....	.15	....	.15	14	....	....	....
Lacrosse	Colo.	10	.14	....	.14	....	.14	.09	.14	.09	.14	.09	....	....	....
Lagonda	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Leadville Con.	"	10	.09	.08	.09	.08	.09	....	.09	.07	.09	.07	....	....	1,000
Lillie	"	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Little Chief	"	50	.20	.18	.20	.18	.21	.17	.2	....	.2	.17	....	....	500
Mexican	Nev.	3	.30	....	.3	....	.26	.25	.3	....	.25	.24	....	....	4 0
Mollie Gibson	Colo.	5	.24	.20	.20	....	.21	.20	....	....	.2	....	.3	.25	1,0
Mt. Rosa	"	1	.2	.19	.20	....	.19	....	.20	....	.19⅜	....	.24	.18⅜	1,400
Occidental	Nev.	3	.60	....	.6	....	....	....	....	....	.20	....	....	....	....
Old Gold	Colo.	1	.006	.004	.004	....	.004	....	.012	....	.00 6	.0035	.005	.002	9,000
Ontario	Utah.	100	4.25	....	4 25	....	4 35	....	4.5	....	6 25	....	....	....	150
Ophir	Nev.	3	.65	....	.60	....	.60	....	.60	....	.60	....	....	....	....
Pharmacist	Colo	1	.05	....	.05	....	.05	....	.05	....	.05	....	....	....	2,500
Phoenix	Ariz.	1	.11	....	14	.12	.12	.11	.13	.10	....	....	....	....	2,500
Pilgrim	Colo.	1	.0035	.0032	.0032	....	.0032	....	....	....	.0025	....	.004	.002	21,000
Plymouth Con.	Cal.	10	.10	.08	.10	.08	.10	.08	....	.08	.10	....	....	....	....
Portland	Colo.	1	1 5	1 45	1 35	....	1 40	1.35	1 40	1 35	....	....	1.5	1 40	....
Potosi	Nev.	3	.15	.14	.18	....	.14	....	14	.10	.14	....	....	....	300
Quicksilver	Cal.	100	1 50	....	1 25	....	1 75	....	1.25	....	1.25	....	....	....	....
do. pref	"	100	4.00	....	4.00	....	6 50	....	....	....	4 50	....	....	....	100
Rocky Mtn	Colo.	1	05¾	.03	03	....	.02⅜	.01¾	....	....	.01⅜	....	.02⅜	.01	10,400
St. F. Cariboo	B.Col.	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Savage	Nev.	2½	.20	....	.20	.15	.14	.13	.13	....	.15	....	....	....	....
Sentinel	Colo.	1	.0034	.0032	.0027	....	.0027	....	.001	....	.0016	.0015	.002	.0013	61,000
Sierra Nevada	Nev.	3	1.00	....	1 00	....	1 0	1 00	1 25	....	1 10	1 00	....	....	20,200
Small Hopes	Colo.	20	1.30	....	1.25	....	1 15	....	1.30	....	1 10	....	....	....	600
Standard Con	Cal.	100	1.85	1.80	1.85	1 80	1.80	1.75	1 75	....	1.75	....	....	....	....
Syndicate	"	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Union	Colo.	1	.18	....	.19	....	....	....	....	....	.18	....	....	....	....
Union Con	Nev.	2½	.30	....	30	....	.22	.20	.20	....	.20	....	....	....	....
Utah Con	"	5	10	....	10	....	10	....	11	....	....	....	....	....	500
Waldorf	Colo.	1	.03¼	.02	.02	....	.02	....	.02⅜	....	.008	....	.01	.005	2,200
Work	"	1	15	.12	12½	.11	.10	....	12⅜	.11	12	.11	15	.12	....
Yellow Jacket	Nev.	3	.20	....	.18	....	.17	.15	.15	....	.15	....	....	....	100

COAL AND INDUSTRIAL STOCKS.

American Coal	Md.	$25	140	120	140	120	140	120	140	120	140	120	....	....	....
Central of N. J	N. J	100	94¾	....	93	....	93	....	94¾	93¾	94¼	....	93¾	....	3,085
Col. C.& I. Dev	Colo.	100	1¾	¾	1¼	¾	1¼	¾	1¼	¾	1¼	⅜	....	....	....
Col. Fuel & I.	"	100	23⅜	23	23	....	23	....	23⅜	22¼	23	22⅝	....	....	240
Col. & H C.& I.	Ohio.	100	5¼	4⅜	5	4¾	5	....	5⅜	4⅜	6¼	4⅜	....	....	100
Con. Coal	Md.	100	....	47	....	47	....	47	....	47	....	....	....	....	....
$ Del. & Hud	....	100	100	99	100¾	99¼	100¾	100¼	100¾	99¾	100¾	100¼	99⅝	....	7,381
Ed'n E.I.of N.Y	N. Y	100	150¼	5	151	45⅜	165	56	160	....	66	62	169	....	2,82
*Federal Steel	....	100	32¼	30⅛	32	31⅜	32¼	31⅜	31⅝	31¼	31⅞	31⅜	31⅝	....	9 97
" pf	....	100	76½	74¾	77	76	76⅜	76	76⅜	75¾	76⅜	76	76⅜	....	53,819
Illinois Steel	Ill.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
Maryland C.pf	Md.	100	50	....	52	47	52	47	50	....	52	47	....	....	50
Minnesota Ir.	Minn.	100	....	....	....	....	....	....	....	....	....	....	....	....	....
National Lead.	....	100	....	....	....	....	....	....	....	....	....	....	....	....	....
New Central C	Md.	100	42	36	42	37	42	37	43	38	42	38	....	....	12,147
N. Y., Ont. & W.	N. Y.	100	16⅜	16¼	16¾	16⅜	16¼	16¼	16	15¾	16¾	16	....	....	6,550
Penns'lv'nia C.	Pa.	100	....	330	....	320	....	320	....	320	....	320	....	....	....
Phila. & Read	"	100	18¾	18	19½	18¾	19	18¼	18⅝	18¼	18⅝	18¼	18¾	....	12,033
" 1st pf.	"	100	45¾	44⅝	46¾	4 ¾	4 ¾	45	46	44¾	46	45¾	45¾	....	30,715
§Standard Oil	....	100	411	410	411	410	412	41	412	411	414	413½	....	....	....
Tenn.C.,I.&R.R.	Ala.	100	30¾	30	31	30¾	30¾	30¾	3 3¼	29⅝	30⅝	29⅜	3 3⅛	....	11,261

‡Official quotations of New York Stock, Consolidated Stock and Petroleum and Mining Exchanges. Total sales: Mining, 235,600; other stocks, 178,642 shares. *When issued. §Ex-dividend.

PHILADELPHIA PA.‡

Name of Company.	Location.	Par Val.	Nov. 25. H.	Nov. 25. L.	Nov. 26. H.	Nov. 26. L.	Nov. 28. H.	Nov. 28. L.	Nov. 29. H.	Nov. 29. L.	Nov 30. H.	Nov 30. L.	Dec. 1. H.	Dec. 1. L.	Sales
Cambria Iron	Pa.	$50	41 50	41 00	40 75	41 25	41 13	41 7	42 00	41 00	42 38	41 88	42 50	42 38	5,332
Choctaw, pref.	I. T.	50	41 00	40 50	....	....	41 00	40 75	40 75	....	41 00	40 63	40 50	....	643
Lehigh Nav.	Pa.	50	36 50	....	37 00	36 75	37 00	....	....	....	37 50	....	38 25	....	625
" Val	"	50	19 50	19 00	19 25	19 00	19 63	19 50	....	....	20 0	19 75	20 0	....	7,169
Penna. R. R	"	50	59 75	59 38	59 75	59 63	59 63	59 50	59 75	59 50	59 50	....	59 50	59 38	1,9 9
Hunt & Br. Top	....	....	....	....	....	....	....	....	14 13	....	....	....	....	....	185
" pref	....	....	39 75	39 00	....	....	40 00	....	40 75	40 00	41 0	....	41 0	....	51
Penna. Steel	Pa	100	....	....	....	....	....	....	9 5	....	....	....	....	....	4,000
United Gas I	"	50	120	....	121	120	122	121¾	122	....	123	122	123¾	123	6,530
Welsb. of Can.	Can.	5	....	....	....	....	....	....	....	....	....	....	....	....	....
Welsb. Comi	"	100	....	....	....	....	....	....	....	....	10.0	....	....	....	1 0
" Pref	"	1 0	33 75	33.50	52 00	....	....	....	53 00	....	....	....	....	....	2
" Light	"	100	....	....	38.5	....	34 00	33 50	33 83	33.50	33 00	32 5	33.50	32.75	1,296
West. Coal	Pa.	5	50 00	....	....	....	53 00	....	....	....	....	....	....	....	125

‡Official quotations Philadelphia Stock Exchange. Total shares sold, 24,123.

PITTSBURQ, PA.

Nov. 30.

Name of Company.	Location.	Par val	Bid.	Ask.	Name of Company.	Location.	Par val	Bid.	Ask.
Allegheny	Pa.	$100	....	....	N.Y. & C. Gas	Pa.	$50	....	....
Carborundum	"	100	....	....	Peoples' Natural Gas	"	50	....	....
Chartiers Valley	"	100	....	....	Peoples' Pipeage	"	25	....	18
Enterprise Mining	Colo.	5	....	....	Pennsylvania Gas	"	50	10½	....
Lustre Mining	Mex.	10	....	....	Philadelphia Gas	"	50	....	38
Mansfield Coal	Pa.	50	....	....	Silverton Mining	Colo.	10	....	....
Manufact Gas	"	50	....	....	Wheeling Gas	W.V.	50	....	49

BOSTON, MASS.†

Name of Company.	Par val.	No. of shares	Nov. 25. H.	Nov. 25. L.	Nov. 26. H.	Nov. 26. L.	Nov. 28. H.	Nov. 28. L.	Nov. 29. H.	Nov. 29. L.	Nov. 30. H.	Nov. 30. L.	Dec. 1. H.	Dec. 1. L.	Sales
Allouez, c	$25	90	90	....	5 13	....	5 00	....	5 50	5 00	5.62	5 25	5 50	....	2 3 0
Arcadian	25	100,000	....	....	40 00	39 00	39 50	38.75	39 50	38 88	39.00	38.00	39 00	38 0	4,697
Arnold, c	25	40,000	....	....	15 0	14 00	15.00	14 50	14 75	13.75	3 7	1. 5	13 00	12 0	3,490
Ash Bed, c	25	40,000	....	....	....	....	2 00	....	....	....	2 00	....	....	....	675
Atlantic, c	25	40,000	....	....	.2.00	....	34.00	33.00	34 50	34 00	....	....	32 50	....	880
Baltic, c	25	100,000	....	....	26 75	26 00	27 50	26 50	28 00	27 00	27.88	26 00	27 75	27.00	7,395
Batopilas	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Bonanza, g	10	300,000	....	....	....	....	....	....	....	.95	....	1 15	95	1.25	1 17
Boston Con. g c	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
Boston & C C. g	2	200,000	....	....	.35	....	.40	.35	40	....	.40	....	.45	.42½	10,800
Bost.&Mont,gsc	25	150,000	....	....	237½	237½	237½	237	238	237	237	233	236	233	182
Breece, l	25	200,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Butte & Bost., c	10	200,000	....	....	57 75	56.50	59 25	57 50	59 25	58 50	59.00	57 00	58.50	57 25	11,317
Cal. & Hecla, c.	25	100,000	....	....	625	....	625	....	625	620	625	....	....	....	119
Catalpa, g	10	300,000	....	....	....	....	....	....	....	....	31	....	....	....	200
Centennial, s.	25	80,000	....	....	26 13	25.38	26 00	25.00	25 75	25.25	25 50	23 75	24 63	24 50	13,552
Crescent	10	150,000	....	....	....	....	....	....	....	....	....	....	10	....	7 0
Dominion Coal	100	150,000	....	....	33.5	32.50	32 50	30 00	33 88	31.75	34 0	32.00	33.00	31 5	17,049
do. pref.	100	30,000	....	....	....	....	....	....	....	....	....	....	1.65	....	120
Dunkin Mg	25	200,000	....	....	....	....	....	....	....	....	....	....	.25	....	140
Franklin, c	25	40,000	....	....	18 63	17 50	17.00	15 25	16 50	15 75	16 5	.6 13	16 25	15.75	1,785
Gold Coin	5	200,000	....	....	....	....	....	.61	....	.60	....	....	....	....	....
Humboldt, c.	25	40,000	....	....	4.00	....	4 00	....	....	....	4.00	3.75	3.50	3.25	760
Illinois Steel	100	186,500	....	....	....	....	....	....	....	....	....	....	....	....	....
I. Royale Con.c.	25	100,000	....	....	29.75	29 50	29.75	29.38	29 25	29 00	30 00	29 50	29 75	29.75	2,339
Lake Sup , I	25	84, 00	....	....	....	....	....	....	....	....	....	....	....	....	....
Merced	15	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Napa, q	7	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
New Idria, q	5	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Old Dominion,c	25	150,000	....	....	34.5	34.00	35 00	34 50	34 75	34 00	34 75	34 13	34 25	34.00	8,830
Osceola, c.	25	100,000	....	....	71.00	69 00	71 00	70 13	72.25	70 50	71.75	70 50	71 00	69.00	8,195
Parrot, s c	10	230,000	....	....	....	....	....	....	....	....	26.00	....	....	....	....
Pioneer, g	10	100,000	....	....	....	....	....	5.13	4 88	....	....	....	5 00	4.88	5.00	1,050
Quincy, c	25	100,000	....	....	142¾	142	142	14.⅜	42	140	140	139	139	137	556
San. Ysabel, g.	5	100,000	....	....	....	....	....	....	....	6.25	....	6 75	....	....	200
Tamarack, c	25	60,000	....	....	178	177	178	....	1 79	....	*178	....	....	....	115
Tecumseh, c	25	40,000	....	....	5 50	....	6.00	5.75	6 00	5.75	6 00	5.50	6.00	5 50	4,028
Utah Con., g	10	100,000	....	....	....	....	....	....	....	....	....	....	....	....	....
Victor	5	200,000	....	....	6 25	5 88	6 00	....	....	....	....	....	5 50	....	330
Washington Mg	25	40,000	....	....	1 50	....	1.50	1 63	1.50	1 50	....	1 50	1 50	1 25	1,340
Wolverine, c	25	60,000	....	....	32 75	32.50	33 00	32 2	32 75	32.5	33 0	32 50	33 00	32 2	3,000

† Official quotations Boston Stock Exchange. Total shares sold, 142 865 *Ex-dividend.

BALTIMORE, MD.‡

Dec. .

Name of Company.	Location.	Par value	Bid.	Ask	Name of Company.	Location.	Par value.	Bid.	Ask
Atlantic Coal	Md.	$10	....	....	Howard C.&C	Md.	$5	....	....
Big Vein Coal	"	10	....	....	Newburg Orrel C.	"	25	....	....
Consolidation Coal	"	100	50	52	Silver Valley	N. C.	5	....	....
George's Creek Coal	"	100	113½	115					

CLEVELAND, O.

Nov. 30.

Name of Co.	Iron Range.	Par Val.	Nov. 30. Bid.	Nov. 30. Ask.	Name of Co.	Iron Range.	Par Val.	Nov. 30. Bid	Nov. 30. Ask.
Aurora	Gogebic	$25	....	84	Jackson	Marquette	$25	....	....
Champion	....	25	....	25	Lake Superior	"	25	$26	$30
Chandler	Vermillion	25	$40	41	Minnesota	Verm. & Mes	100	91	92
Cleve'd-Cliffs	Marquette	100	43¾	45	Pitts & L'keAng	Marquette	25	105	125
Fed. Steel Co.	....	100	29⅝	31	Republic	"	25	9	10

ST. LOUIS, MO.

Nov. 30.

Name of Company.	Location.	Par value.	Latest Bid.	Latest Ask.	Sales.	Name of Company.	Location.	Par value	Latest Bid.	Latest Ask.	Sales.
Am. Gold	Colo.	$10	....	....	....	Granite B.	Mont.	$10	$1.30	$1.5	400
Am Nettie	Colo.	10	$0.87½	$1.00	300	Hope St. &	Mon.	10	....	....	....
Central L	Mo.	100	....	....	....	St. Joe. L	Mo.	10	....	....	....
Doe Run L	Mo.	100	....	....	....	Sm. Hopes	Colo	20	1 4	....	....

COLORADO SPRINGS, COLO.‡

Name of Company.	Par val	Nov. 21. B.	Nov. 21. A.	Nov. 22 B.	Nov. 22 A.	Nov. 23. B.	Nov. 23. A.	*Nov. 24 B.	*Nov. 24 A.	Nov. 25. B.	Nov. 25. A.	Nov 26 B	Nov 26 A.	Sales
Alamo	$1	....	....	....	....	....	....	....	....	.04½	....	.04¾	....	3,000
Anaconda	1	.61	....	62½	.63	.62	.62¾	....	....	6¾	61	....	....	6,340
Arg'nauma	1	.24	.27	24	.28	.30½	31½	....	....	35	.35½	.35	37	41,642
Banner	1	....	....	....	....	....	....	....	....	.01	....	.01	....	15,000
Battle Mtn	2	....	....	....	....	....	....	....	....	....	....	....	....	....
Bob Lee	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Colon bine	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Cr. & C. C	1	....	....	05	....	05	....	....	....	....	....	....	....	500
C. C. Con	1	07¾	....	07¾	07¾	07¾	....	....	....	.08	....	....	....	5,000
Croesus	1	04	....	....	....	....	....	....	....	03	....	....	....	10,0 0
Des Moines	1	.02	....	....	....	....	....	....	....	....	....	.01¾	.0 ¾	2,400
ElktonCon	1	94	.99¾	96¾	98¾	.97½	98	....	....	.98	99	.97¾	.98	26,350
El Paso G.	1	12	....	12¾	12¾	....	....	....	....	12¾	12¾	....	....	3,740
Fanny R.	1	43½	44	....	....	45	....	....	....	45	....	42½	.44	18,5 0
Favorite	1	02¾	....	12¾	....	02¾	....	....	....	02¾	....	02¾	....	32,000
Findley	1	16¾	16¾	16¾	16¾	15¾	16¾	....	....	15¾	16	16¾	16¾	152,000
Franklin	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Gold & Gl	1	05¾	05¾	05¾	....	....	....	....	....	....	....	....	....	10,000
Golden Fl	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Hayden G	1	....	....	....	....	06¾	....	....	....	07¾	....	....	....	8,000
Independ'e	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Ing. Con	1	08¾	09	08¾	....	....	....	....	....	....	....	....	....	8,984
Isabella	1	28	29	29	....	26¾	28¾	....	....	24	26	25¾	28	68,750
Jack Pot	1	22¾	....	21¾	22¾	21	23¾	....	....	30¾	21¾	23¾	25¾	54,800
Lillie	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Ma'net R.	1	01	01¾	01¾	01¾	....	....	....	....	01¾	0 9¾	01¾	....	39,664
Marion	1	....	....	....	....	....	....	....	....	....	....	....	....	....
Maton	1	....	....	31¾	32	32¾	....	....	....	32	33¾	35	35¾	3',300
Mobile	1	03¾	....	03¾	....	03¾	04	....	....	03¾	03½	03¾	....	40,900
Mollie Gib	1	22	....	....	....	....	....	....	....	23	23¾	....	....	2,000
Moon-A'cher	1	1.19¾	1 20	1 19¾	1.20	1 19	....	....	....	1.19¾	....	1 20	1 23	9,450
Mt. Rosa	1	....	....	.20	....	20	....	....	....	....	....	21¾	25	36,000
New Haven	1	02¾	02¾	02¾	....	....	....	....	....	....	....	....	....	23,000
Oriole	1	01¾	01¾	....	....	01¾	....	....	....	01¾	....	....	....	1,000
Pharmacist	1	03¾	....	....	....	03¾	....	....	....	....	....	03¾	03¾	25 50
Pilgrim C.	1	....	....	....	....	....	....	....	....	05	....	.05	....	6,0 0
Pinnacle	1	....	....	03¾	03¾	03¾	....	....	....	....	....	....	....	36,000
Portland	1	1.42	1.44¾	1 42	1.42¾	1.42	....	....	....	1 41	.43¾	1.41¾	1 42	13,100
Prince Alb.	1	02¾	....	02	....	....	....	....	....	02	....	....	....	20,100
Princess	1	03	....	....	....	....	....	....	....	....	....	....	....	1,000
Specimen	1	....	....	....	....	....	....	....	....	....	....	....	....	4,000
Theresa	1	05¾	08¾	....	....	08¾	....	....	....	05¾	.

STOCK QUOTATIONS.

DENVER, COLO.‡

NAME OF COMPANY.	Par val.	Nov. 21. B	Nov. 21. A	Nov. 22 B	Nov. 22 A.	Nov. 23 B	Nov. 23 A.	Nov. 24 B.	Nov. 24 A.	Nov. 25 B.	Nov. 25 A.	Nov. 26. B.	Nov. 26. A.	Sales
Mines.														
Anac'da G.	$5	.60	.70	.61	.....	.61	.62½	.....	.....	58	62	.....	.64	100
Anch'a Lel	1	.....	.....	70	.....	80	.....	.....	.....	82	.....	83¾	.....	.....
Arca'a Con.	1	02¾	.03¾	02¾	.03¾	02¾	03¾	.....	.....	.02¾	.03¾	.02¾	.03	750
Arg J.....	1	.24¾	.....	.26	.....	3 ¾	.32	.....	.....	.37	.....	.....	.35¾	3,700
Bankers....	1	05¾	06¼	06	.06¼	0 ¾	06¾	.....	.....	.05¾	06	05¾	.06¾	3,700
Big Six.....	1	.05	.....	.0	.....	.04	.....	.....	.....	.05	.....	05	.....	.....
C. C. Con...	1	07¾	.08¼	07¾	08¾	.....	08¼	.....	.....	0.9¼	.08¼	07¾	08¼	2,000
Elkton Con.	1	98	98¼	97¾	98	98	.99	.....	.....	96	.97¾	96¾	98	8,700
El Paso, G..	1	1.1¾	1.12¾	12	.....	12	13¾	.....	.....	.....	.....	.....	.....	2,000
Enterprise	1	04	04¾	04¾	04¼	04¼	04¾	.....	.....	04	.....	04	04¼	10,000
Fanny R....	1	.43¾	.45	.44	45	.....	44	.....	.....	.39¾	.44	.....	.....	3,000
Gold & 31	1	05¾	.06¼	04¾	.....	05	.06	.....	.....	.....	.....	.....	.....	2,000
Iron Clad.	1	.03	03¾	.03	.03¾	.03	03¾	.....	.....	03	.....	.03	03¾	5,000
Isabella....	1	.27¾	.....	28¼	.29¾	26¾	27¼	.....	.....	.....	.27	.27	.28	11,000
Jack Pot....	1	.22	.23	.23	.....	.20¾	.2	.....	.....	.20	.21	.21	.....	2,000
Keystone....	1	.05	.05¾	05¼	.05¾	.05¼	05¾	.....	.....	.....	.....	.....	.....	4,000
Lexingt. n..	1	.....	.08	03	.....	.....	.....	.....	.....	.....	.....	.....	.....	50,000
Matoa.....	1	.31	.....	.31¾	.....	.30¾	.....	.....	.....	.32	.....	.34¼	.35¾	3,000
Moon A.....	1	1.18	1.20	1 19¾	1 21	1 18	1.22	.....	.....	1.19	1 21	1 21	.....	4,000
Mt Rosa....	1	.19¾	.21	19	.21	19	.21	.....	.....	.19¾	.21	.22¾	.25	24,000
Peoples....	1	.01¾	.01¾	01¾	01¾	01¼	.....	.....	.....	01½	.....	.01¾	01¾	.....
Pharmacist	1	03¾	04¾	03¾	04¼	.03¾	04¼	.....	.....	.03¾	04	03¾	04	.....
Portland ..	1	1 44	.....	1 4	1 44¾	1 42	.....	.....	.....	1 40¾	1 42	1 4	.....	5,000
Sacram'nto	1	.03¾	04¾	.03¾	.....	03¾	.04¼	.....	.....	.....	.....	.03¾	.....	100
Specimen..	1	03¾	.04¾	.04	.04¾	.04	04¾	.....	.....	.03¾	.....	.03¾	.04¾	9,000
Union Gold	1	2 ¾	.21¾	.2 ¾	21¾	.....	.....	.....	.....	.18¾	.20	.20	.2 ¾	3,100
Va. M	1	02¾	.03¾	.03	.03¾	.02¾	.....	.....	.....	02¾	.03¾	0 2¾	.....	1,000
Work	1	.12	12¾	.12¾	12¾	.12	.12¾	.....	.....	.12¾	.12¾	.12¾	.....	5,000
Prosp'cts:														
C. C. Imp...	1	.001¾	.....	0.01¾	.....	001	.....	.....	.....	.001	.002¾	001¾	002¾	30,000
Finley	1	16¾	16¾	16¾	16¾	.....	.....	.....	.....	.....	.....	.....	.....	.....
Geo Wash	1	002	004	0 2	004	0 2	.03	.....	.....	.002	.....	02	.....	.....
Gilpin Four	1	004	005¾	004	004¾	001	0.5	.....	.....	.....	.....	004	0.5	1,700
Gregory L'g	1	006¾	007¾	0.6¾	007¾	.07	007¾	.....	.....	.03¾	010	00?¾	007¾	1,000
Illinois	1	0.3¾	.004¾	003	.....	003¾	.....	.....	.....	0 1¾	.....	.001	.....	.....
New Haven	1	0.3¾	02¾	02	02¼	.02	.023¾	.....	.....	02	.....	01¾	.....	.....
Old Gold.	1	005	.0 6	.005	0.6	0.5¼	0 6	.....	.....	0 5	.....	005	0 5¾	5,000
Pikrim.	1	.005¾	.004	003¾	.004	003	0 4	.....	.....	.003	.....	.0033¼	.....	133,000
Pine Creek	1	.003¾	004	003¾	004	003	.....	.....	.....	.003¾	004	003	004	.....
Puritan. ..	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Reno..	1	01¾	02	.01¾	.....	.01¾	.....	.....	.....	.01¾	02¾	01¾	02¾	100
Tamarack.	1	005¾	006	.005	.0 6	005¾	006	.....	.....	.....	.....	0 5¾	006	57,000
W.of F Con	1	0 3¼	004	.003¾	.....	003	.....	.....	.....	.....	.....	0 3	.....	4,000

‡Official Quotations Denver Stock Exchange. Sales: Mines, 163,050 shares; Prospects, 219,800 shares; grand total, 382,850 shares.

SAN FRANCISCO, CAL.†

NAME OF COMPANY.	Location.	Par. value.	Nov. 25.	Nov. 26.	Nov. 28.	Nov. 29.	Nov. 30.	Dec. 1
Alpha Con.	Nev.	100	.06	.06	.....	.....	.....	.....
Alta.....	"	100	.12	13	.12	.12	.13	.12
Andes.....	"	100	.10	09	.09	.08	.....	.08
Belcher.....	"	100	.26	25	.24	.22	22	.24
Best & Belcher...	"	100	.36	.35	.36	22	37	.40
Bullion.....	"	100	.05	.05	.05	.05	.....	.05
Caledonia.....	"	100	25	25	24	.22	.22	24
Challenge Con.....	"	100	.18	.18	16	.16	.15	.16
Chollar.....	"	100	.25	.25	24	.23	23	.25
Confidence.....	"	100	.65	.....	.....	.....	.62	.67
Con. California & Virginia..	"	100	1.25	1 25	1 30	1.30	1 30	1 40
Cons. Imperial.....	"	100	.01	.....	01	.01	01	.01
Cons. New York.....	"	100	.....	.....	.....	.....	.....	.....
Crown Point	"	100	.22	.20	.19	.18	.17	.18
Exchequer	"	100	.....	.....	.....	.....	.01	.01
Gould & Curry.....	"	100	.17	16	.16	.16	15	.16
Hale & Norcross	"	100	1.35	1 15	1.30	1.35	1 40	1.50
Julia Con.....	"	100	.01	.01	.01	.01	.01	.01
Justice.....	"	100	.20	.21	.18	.17	.18	.17
Kentuck Con.....	"	100	.05	.....	.05	.05	.05	.....
Mexican.....	"	100	.27	.27	.27	.27	.27	.27
Occidental Con.....	"	100	.64	.63	.61	.72	.69	.66
Ophir.....	"	100	.68	.66	.67	.65	.68	.71
Overman.....	"	100	.15	05	.04	.02	.03	.03
Potosi.....	"	100	.14	15	.14	13	.12	.14
Savage.....	"	100	.19	18	.18	.18	.18	.18
Scorpion.....	"	100	03	03	03	03	03	.03
Sierra Nevada.....	"	100	1.10	1 10	1.15	1.15	1 20	1.30
Silver Hill	"	100	.....	.....	.....	.....	.....	.....
Standard.....	Cal.	100	1.75	1.95	1.75	1.75	1.75	.....
Union Con.....	Nev.	100	.29	.26	23	.25	.24	.27
Utah Con	"	100	.14	15	.15	13	.12	.14
Yellow Jacket.....	"	100	.21	19	.17	.16	.17	.18

Official telegraphic quotations, San Francisco Stock Exchange.

ROSSLAND, BRITISH COLUMBIA.*

Nov. 24.

NAME OF COMPANY.	No. of shares.	Par value	Selling price.	NAME OF COMPANY.	No. of shares.	Par value	Selling price.
Brandon & Gold. Cr..	1,500,000	$1	$0 25	Lerwick..	500,000	$1	.....
Brit. Amer. Corp'at'n	7,500,000	5	4 00	Lily May.....	1,000,000	1	.....
Brit. of rporation	1,500,000	2½	.....	Lon.&Van.Fin.Dev.Co	500,000	5	.....
Canadian Gold Fields	10,000,000	0 10	10	London B. C Gold F..	250,000	5	.....
Cariboo.....	1,500,000	1	1 10	Monte Cristo	1,000,000	1	.....
Commander.....	50,000	1	.08	New Gold Fields, B.C.	250,000	1	$3.85
Deer Park.....	1,000,000	1	.18	Novelty	1,000,000	1	.05
Dundee.....	1,000,000	1	35	Queen Bess Prop....	120,000	5	.....
Evening Star.....	1,000,000	1	.....	Rambler Cariboo.....	1,000,000	1	15
Fern	200,000	¼	.82	Reco.....	1,200,000	1	1 60
Gold Fields of B.C ..	3,000,000	5½	2.85	Red Mt.View	1,000,000	1	.....
Hall Mines	250,000	5	5.12	St. Elmo.	1,000,000	1	.....
Hattie Brown.....	1,000,000	1	.....	St. Paul.....	1,000,000	1	.....
Homestake.....	1,000,000	1	.04	Sarah Lee	1,000,000	1	.....
Iron Colt.....	1,000,000	1	.....	Silver Queen.....	1,500,000	1	.15
Iron Horse.....	1,000,000	1	.....	Slocan Star.....	500,000	1	2 00
Iron Mask.....	500,000	1	.75	Vic Tr. MinesDev. Co.	25,000	5	.....
Josie	700,000	1	.....	Virginia	500,000	1	.....
Jumbo.....	500,000	1	.....	War Eagle Con.....	2,000,000	1	2 90
Kenneth.....	1,000,000	1	.20	Waverly Mines.....	100,000	5	.....
Keystone.....	1,500,000	1	.....	White Bear.	2,000,000	1	.12
KootenayGold Fields	20,000	5	.....	Wild Horse.....	400,000	1	.....

* From Our Special Correspondent.

SHANGHAI, CHINA.‡

Oct. 24.

NAME OF COMPANY.	Country.	No. of shares.	Value. Par.	Value. Paid up.	Last dividend. Date.	Last dividend. Amount.	Price.
Jelebu Mg. & Trad....	China	45,000	$5	$5	Oct., 1894..	$0.25	Taels 3 28
Punjom Mg., Ltd.	"	6,000	8	5	.....	.....	" 4 38
do. pref	"	30,000	1	1	.....	.....	" 1.17
Raub Australian G. Mg.	"	200,000	£1	14s. 10d.	July, 1898	.51	" 26 25
Sheridan Con. M.& M.	Colorado, U.S	20,000	Taels 100	Taels 100	.....	.....	" 2.25

‡ Special Report of J. P. Bissett & Co. The prices quoted are in Shanghai taels

SALT LAKE CITY, UTAH.*

Nov. 26

STOCKS.†	No. of shares	Par val.	Bid.	Asked.	STOCKS.†	No of shares.	Par val.	Bid.	Asked.
Ajax.....	300,000	$10	$0.67½	$0.69	Homestake.....	400,000	$1	$0 01¾	$0.02¾
Alice.....	400,000	25	1.12½	.....	Horn Silver.	400,000	25	1 12½	1.30
Anchor.....	150,000	10	.69	.71¾	Little Pittsburg..	400,000	5	.07¾	.07¾
‡Brick Con.....	500,000	1	.....	.....	Lower Mammoth	150,000	1	72¾	.74
Buckeye.....	500 000	1	.03	03¾	Mammoth	400,000	5	1.87½	1.90
Bullion-Beck & Ch.	100,000	10	4 75	5.12½	Mercur.....	200,000	25	7 25	7 50
Centennial Eureka	30,000	50	36 00	43 00	Northern Light..	400,000	5	41	.42¾
Chloride Point..	500,000	1	1.12½	1.15	Omaha	300,000	2	.55	.59
Daisy..	500,000	3	.60	.65	Ontario.....	150,000	100	5.15	.....
Dalton	500,000	5	01¾	.02¾	Overland	400,000	5	.....	.....
Dalton & Lark....	2,500,000	1	04¾	.10	Richmond-An....	500,000	1	06¾	.07
Daly.....	150,000	20	1.00	1.07½	Sacramento	1,000,000	5	57½	59
Daly West.....	75,000	20	4.10	5 50	Silver King.	150,000	30	30 00	31.50
‡Dexter.....	200,000	5	2.85	2 90	Sunbeam.....	250,000	1	.09	.10
Eagle.....	150,000	1	.10	.15	Sunshine.....	250,000	10	63	65
Emerald	300,000	1	16¾	.17	Swansea	100,000	5	3 60	3 90
Four Aces.....	250,000	1	30¾	.31	South Swansea..	150,000	1	1.25	1.30
Galena	100,000	10	.51	.52	Utah	100,000	10	.82¾	1 00
Geyser-Marion.....	300,000	5	.63¾	64	Valeo	200,000	1	1.35	1 42½
Grand Central.....	250,000	1	7.60	8 00	Young America..	200,000	1	50	.55

*From Our Special Correspondent. † Utah companies. ‡ Mines in Vanderbilt, Cal. Mines in Tuscarora, Nev.

HELENA MONT.*

Nov. 18.

NAME OF COMPANY.	Location.	Company's office	Par value.	Bid.	Asked.	Shares sold.	Price.
Am. Dev. & M .	Idaho & Mont.	St. Paul, Minn. &Gib'ville,Id.	$5	.....	$1.00	.....	.....
Bald Butte.....	L. & Cl'ke Co.	Helena, Mont.	1	$2 00	2 50	550	$2.00
Bi-Metallic.....	Granite "	St. Louis, Mo.	5	.....	.....	.....	.....
Con.T.&P'rm'n	Cœur d Alene,Id	Burke, Id.	5	.50	.60	1,000	.45
Gold Mountain,	Ruby, Mont.	....	.....	1.15	1.25	15,000	....
Helena & Frisco	Cœur d'Alene	London.	5	7.00	7.50	100	8 00
Iron Mountain.	Missoula, Mont.	Helena, Mont.	5	.....	.....	.....	.....
Judge.....	Meagher Co."	" "	.....	.08	.10	110,000	.....
Merrill (Gold)..	Jefferson " "	Butte "	1	.....	.....	.....	.....
Ontario..	DeerLodge" "	Helena "	1	.....	.....	.....	.....
Yellowstone....	Meagher " "	" "	5	.05	.07½	7,500	.05 to .07

* Special Report of Samuel K. Davis. Total shares sold, 2,600.

TORONTO, CAN.

NAME OF COMPANY.	Par val.	Nov 24. B.	Nov 24. A.	Nov. 25 B.	Nov. 25 A.	Nov. 26. B.	Nov. 26. A.	Nov. 28. B.	Nov. 28. A.	Nov. 29. B.	Nov. 29. A.	Nov. 30. B.	Nov. 30. A.	Sales
Ontario:														
Ham Reef.	$1	.....	.....	.....	.20	.....	19	1.15¾	.19¾	.15¾	.19	.....	.....	.....
Olive	1	.....	.....	.89	.90	89	.90	.89	.90	89	.90	.....	.....	.....
Sup G & C.	.	.....	.....	06	07	06¾	.07	06	.07	.06	.07	.....	.....	6,500
British Col.:														
Athabaska..	1	.....	.....	38	42	.40¾	.43	39	43	1 40	.43	.....	.....	2,250
C'rib'o M'K	1	.....	.....	1 24	1.38	1.20	1.22	1.19	1.22	1 20	1 25	.....	.....	250
Command'r	1	.....	.....	.....	.13	.10	.13	.....	.10	.....	.....	.....	.....	.....
Deer Park..	1	.....	.....	.15	17	.17	.17¾	18¾	21	.19¾	.21	.....	.....	14,000
Dundee.	1	.....	.....	.29	33	.....	.35	.....	.35	.....	.40	.....	.....	1,000
Even'g Star	1	.....	.....	.04	.06	.05¾	.06¾	.05¾	.06¾	.05	.07	.....	.....	8.0
Giant	1	.....	.....	.....	08	.....	.08	.....	.....	.....	.08	.....	.....	3,000
Gold. Cache	1	.....	.....	.04¾	.07½	05	07¾	.05¼	08¾	.....	.05¾	.....	.....	3,000
GrandPrize	1	.....	.....	.....	01	.....	.....	.....	01¾	.....	.01¾	.....	.....	.....
Iron Colt ..	1	.....	.....	.....	.09¾	09¾	.09¾	.09	.09¾	.09	09¾	.....	.....	.....
Keystone ..	1	.....	.....	.08	11	.....	.11	08	.11	.....	.11	.....	.....	600
Minnehaha	1	.....	.....	19¼	23	.19	.23	.19¾	.23	18¾	.22	.....	.....	55,400
Monte Crist	1	.....	.....	10¾	10¾	11¾	.11	.10¾	.12	.13¾	.15	.....	.....	16,500
Noble Five..	1	.....	.....	.....	.15¾	.15¾	18	.15¾	.18	.15	.18	.....	.....	1,000
Novelty.....	1	.....	.....	.04	.04¾	.04	.05	.03¾	05	04	.05	.....	.....	3,000
St. Elmo...	1	.....	.....	04	.05¾	.04	.05¾	.04¾	.16¾	04	.05	.....	.....	.....
Silver Bell .	1	.....	.....	.....	05	.05	.07	.....	.05	.06¾	.18	.....	.....	7,500
Smuggler,g.	1	.....	.....	.19	.21	18¾	.20	18	.20	.18¾	.20	.....	.....	1,000
Van Anda..	1	.....	.....	.04	05	04	05	03¾	.05	03¾	.04¾	.....	.....	18,000
Victory Tri	1	.....	.....	.06	09	06	08	.05	10	.06	07¾	.....	.....	1,500
Virginia ..	1	.....	.....	35	.40	31	.34	.....	51	.....	.50	.....	.....	.....
War Eagle	.....	.....	.....	2 84	2.89	2.86	2 91¾	.....	2 91	2.91	2 92	.....	.....	.....
White Bear.	1	.....	.....	06¾	09¾	06¾	07	06¾	07	.06¾	.07	.....	.....	13,500
Winchester.	¼	.....	.....	.....	.12	.09	.11	09¾	.10	.....	.15	.....	.....	1,000
Develop Co:														
B.C. Gold F.	1	.....	.....	.04¾	06	.04¾	.06	.04¾	.06	.04¾	.06	.....	.....	1,00

Total sales, 157,700 shares.

MEXICO.

Nov. 24.

NAME OF COMPANY.	No. of shares.	Last div'd.	Prices. Op'g	Prices. Cl'g.	NAME OF COMPANY.	No. of shares.	Last div'd	Prices. Op'g	Prices. Cl'g.
Chihuahua:					Hidalgo:				
Gloria	1,500	.....	$60	$50	Real del Monte..	2,354	10 00	780	800
Durango:					San Francisco....	6,000	2.00	265	270
Bangadon y Cab ...	2,400	.....	150	150	San Rafael y An.	1,200	10 00	1,050	1,000
Candelaria de Pan.	1,200	.....	20	20	do aviado	1,200	10 00	400	500
Capuzaya.....	2,400	.....	10	50	do. del Oro....	3,000	.....	20	15
Penoles	2,300	30.00	2,300	2,000	Soledad..... ..	960	5 00	38	400
Restauradora.....	10,500	.....	20	30	Sorpresa..... ..	960	5.00	260	350
Rosario y Anexas.	4,800	.....	20	30	Union.	2,000	4.00	260	300
Guanajuato.					Mexico:				
angustias.....	2,400	10.00	350	320	Coronas	500	.....	75	75
Cinco Senores y An	2,000	15.00	300	480	Esperanza y An..	3,000	10.00	1,300	1,320
El Oro	500	.....	30	30	Michoacan				
do. pref.	2,000	.....	30	30	Luz de Borda ava	3,000	.....	15	12
Guadalupe	10,000	2.00	220	240	do aviado	1,000	.....	20	15
Trinidad, aviador .	2,000	.....	140	145	Pueblo:				
do. aviado.	400	.....	125	110	Tlauxingo..... ..	2,400	.....	40	27
Zona Minera de Paz	2,400	.....	15	90	S. Luis Potosi:				
Hidalgo:					Concep. y An.	3,000	.....	90	150
Amistad y Concord.	9,600	1.38	27	25	Sta.MariadelaPaz	2,400	10 00	700	715
Arevalo	720	.....	200	200	Zacatecas:				
Bartolome de Med.	2,000	2.00	90	80	Asturiana y An	3,500	10.00	90	110
Carmen..... ..	1,160	7.75	501	500	Capezon	2,400	.....	20	15
Luz de Maravillas..	1,100	.....	150	180	C'delar. de Pinos.	2,500	.....	180	160
Pabellon.....	1,000	27.89	50	40	Palma de Somb..	2,400	.....	100	100

NOTE.—In most of the older Mexican mining companies the shares have no fixed par value. The capital is formed of a certain number of shares, the total value not being named. Many newer companies have a nominal par value, usually $50 or $100. Prices are in Mexican dollars.

VALPARAISO, CHILE.‡

Oct. 8.

NAME OF COMPANY.	Location.	Capital paid.	Sh. Val paid up.	Last Div'nd. Amt.	Last Div'nd. Date.	Prices. Bid.	Prices. Asked.	Prices. Last sale
Arturo Prat, silver	Chile..	$3,300,000	$100	4 p. c.	1897	16	18	19
Caracoles, silver	"	315,000	100	10 "	1894	.....	.....	.....
Huantajaya (mine) silver	"	1,000,000	100	13 "	1894	.....	.....	.....
Huanchaca, silver.....	Bolivia,	8,000,000	25	8 "	1895	30	31	31
Jruro, silver.....	Chile...	800,000	200	.....	.....	240	250	240
Todos Santos, silver.....	"	2,000,000	100	1 "	1895	6	10	5
Agua Santa nitrate.....	"	3,000,000	50	2 "	1898	1 0	165	156
Antofagasta, nitrate.....	"	2,000,000	200	3 "	1898	128	130	128
Soc. Internacional, nitrate	"	1,600,000	60	.....	.....	.....	.....	.....
Union, nitrate.....	"	5,000,000	200	.....	.....	65	70	60

‡ Special Report of Jackson Bros. Values are in Chilean pesos or dollars.

STOCK QUOTATIONS.

LONDON.

Nov. 18.

NAME OF COMPANY.	Country.	Authorised capital.	Par value.	Last dividend. Amt.	Last dividend. Date.	Quotations. Buyers	Quotations. Sellers
			£ s. d.	s. d.		£ s. d.	£ s. d.
Alaska-Mexican, g	Alaska	£200,000	1 0 0	0 4.8	Nov., 1898	1 2 6	1 7 6
Alaska-Treadwell, g	"	1,000,000	5 0 0	1 6	" "	4 15 0	5 0 0
Anaconda, c., s	Montana	6,000,000	5 0 0	5 1½	Nov., "	5 8 9	5 11 3
Cariboo, y f, pref	British Col'mbia	160,000	1 0 0	.....	.....	15 0	1 0 0
Chiapas, g., s., c	Mexico	252,500	1 0 0	.....	.....	5 0	7 0
Con. Gold Fields	"	300,000	1 0 0	.....	.....	10 0	15 0
De Lamar, g., s	Idaho	400,000	1 0 0	6	May, 1898	4 6	5 6
Elkhorn Priority (New), s	Colorado	87,500	1 0 0	1 0	June, 1898	1 3	3 9
Golden Gate, g	California	80,000	1 0 0	.....	.....	2 6	5 0
Grand Central, g., s	Mexico	300,000	1 0 0	2 0	Dec., 1898	1 13 9	1 16 3
Hall Mines, c., s	British Col	250,000	4 0 0	1 0	May, 1898	11 3	13 9
Lillooet, F. R. & Car., g	"	300,000	1 0 0	.....	.....	5 0	10 0
Montana, g., s	Montana	660,000	1 0 0	0 3	May, 1898	6 0	7 0
Mountain Copper	California	1,250,000	5 0 0	2 6	Sept., 1898	4 17 6	5 2 6
Plumas-Eureka, g	"	281,250	2 0 0	0 6	Oct., 1896	2 0	3 0
Richmond, g., s., l	Nevada	270,000	5 0 0	1 0	Dec., "	5 0	17 6
Sierra Buttes, g	California	245,000	4 0 0	0 6	Apr., "	1 6	2 6
Colomb. Hydraulic, g	Colombia	75,000	1 0 0	6	Oct., 1898	13 9	16 3
Copiapo, c	Chile	200,000	2 0 0	2 0	June, 1898	2 13 9	2 16 3
Frontino & Bolivia, g	Colombia	140,000	1 0 0	1 6	Oct., 1898	1 17 6	2 2 6
*St. John del Rey, g	Brazil	600,000	1 0 0	0 6	July, 1898	1 6 0	1 7 0
Tolima A., s., g	Colombia	70,000	5 0 0	5 0	July, 1897	1 0 0	1 10 0
Tolima B., s., g	"	30,000	5 0 0	5 0	"	15 0	1 5 0
Utah Con., g	Utah	800,00	1 0 0	rts.	Mar., 1898	2 12 6	2 17 6
Linares, l	Spain	45,000	3 0 0	12 6	Sept., 1898	8 0 0	8 10 0
Mason & Barry, c., sul	Portugal	630,000	3 0 0	4 0	Oct., 1898	3 0 0	3 5 0
Rio Tinto, c	Spain	1,625,000	5 0 0	£1	Nov., 1898	30 11 3	33 13 9
" " pref	"	1,625,000	5 0 0	2 6	May, 1898	5 18 9	6 1 3
Tharsis, c	"	1,350,000	2 0 0	10 6	1898	7 7 6	7 12 6
Assoc. Gold Mines	W. Australia	5,0,000	1 0 0	2 0	July, 1898	5 0 0	5 2 6
Broken Hill Prop., s	N.S.Wales	384,000	1	8 0	1 6 Oct., 1898	2 3 9	2 6 3
*Great Boulder, Prop	W. Australia	1,750,000		2 0	6 July, 1898	19 6	19 6
Hannan's Brownhill, g	"	110,000	1	0 0	7 6 Nov., 1898	7 2 6	7 5 0
Harquabala	"	300,000	1	0 0	6 6 Nov., 1894	9	1 3
Ivanhoe Gold Corp	"	1,0,0,000	5	0 0	.....	6 6	6 8 9
Kalgurlie, g	"	120,000	1	0 0	.....	6 0 0	6 2 6
Lake View Consols, g	"	250,000	1	0 0	16 0 Apr., 1898	9 8 9	9 11 3
Mt. Lyell M. & R., l., c	Tasmania	900,000	5	0 0	2 0 Oct., 1898	6 7 6	6 12 6
Mt Morgan, g	Queensland	1,000,000	1	0 0	7 Nov., 1898	5 0 6	5 2 6
Waihi g	New Zealand	340,000	1	0 0	2 0 Dec., 1898	4 6 3	4 8 9
West Aust. Jt. Stk. Lin. & F	W. Australia	1,0,0,0	1	0 0	1 0	7 0	8 0
Champion Reef, g	Colar Fields	240,000		10 0	3 6 Sept., 1898	4 11 3	4 13 9
Coromandel, g	"	140,000		10 0	1 0 Aug., 1898	1 15 0	2 1 3
Mysore Gold, g	"	250,000	1	10 0	5 0 Nov., 1898	4 17 6	5 0 0
Nundydroog, g	"	242,000		0 0	3 4 " 1898	3 15 0	3 17 6
Ooregam, g	"	145,000	1	0 0	1 0 Dec., 1898	3 5 0	3 7 6
" pref. g	"	120,000	1	0 0	1 0 " 1898	3 17 6	4 0 0
Angelo, g	Transvaal	275,000	1	0 0	5 0 Apr., 1898	6 0 0	6 2 6
*Bonanza, g	"	200,000	1	0 0	10 0 June, 1898	4 10 0	4 15 0
British S. Af., chartered	So. Africa	3,750,000	1	0 0	rts. Apr., 1898	2 13 9	2 16 3
Cape Copper, c	"	600,000	1	0 0	3 0 July, 1898	5 10 0	5 15 0
" pref	"	150,000	2	0 0	3 0 " 1898	5 5 0	5 10 0
City & Suburban (New), g	Transvaal	1,360,000	2	0 0	8 0 Aug., 1898	5 7 6	5 12 6
Con Deep Level, g	"	200,000	4	0 0	xb. Apr., 1898	3 0 0	3 5 0
Crown Reef, g	"	120,000	1	0 0	18 0 Nov., 1898	13 17 6	14 2 6
De Beers Con., d	Cape Colony	3,950,000	1	0 0	21 June, 1898	25 3 9	25 6 3
Durban Roodepoort, g	Transvaal	135,000	5	0 0	4 0 Sept., 1898	5 15 0	6 0 0
Ferreira, g	"	90,000	1	0 0	30 0 Aug., 1898	24 15 0	25 5 0
Geldenhuis Deep, g	"	350,00	1	0 0	6 0 " 1898	9 7 6	9 12 6
Geldenhuis Est, g	"	200,000	1	0 0	2 0 Nov., 1898	7 7 6	7 10 0
Ginsberg, g	"	160,000	1	0 0	4 0 Aug., 1898	2 8 9	3 1 3
Henry Nourse, g	"	125,0,0	1	0 0	15 0 " 1898	9 12 6	9 17 6
Heriot (New), g	"	115,00.	1	0 0	10 0 Nov., 1898	7 7 6	7 12 6
Jagersfontein, d	Orange Fr. St.	1,000,00	1	0 0	6 0 Sept., 1898	8 17 6	9 2 6
Johannesburg Con. Invst	So. Africa	2,75,,000	1	0 0	2 0 Aug., 1897	1 2 6	1 5 0
Jubilee, g	Transvaal	50,000	1	0 0	5 0 Nov., 1898	10 0 0	10 10 0
Jumpers, g	"	100,000	1	0 0	6 0 Aug., 1898	5 2 6	5 7 6
Kleinfontein, g	"	275,000	1	0 0	rts. Apr., 1898	2 11 3	2 13 9
Langlaagte Estate, g	"	300,000	1	0 0	3 0 Sept., 1898	3 0 0	3 2 6
May Con. (New), g	"	27,,000	1	0 0	2 0 Jan., 1897	3 5 0	3 12 6
Meyer & Charlton, g	"	85,000	1	0 0	5 0 Aug., 1898	4 15 0	5 0 0
Namaqua, c	Cape Colony	200,000	1	0 0	3 6 July, 1898	2 18 9	3 1 3
Primrose (New), g	Transvaal	300,000	2	0 0	5 0 Aug., 1898	4 3 9	4 6 3
Rand Mines, g	So. Africa	400,000	1	0 0	.....	31 15 0	32 0 0
Robinson, g	Transvaal	2,750,000	1	0 0	1 0 Aug., 1898	8 0 0	8 15 0
Sheba, g	"	1,100,000	1	0 0	0 6 July, 1898	1 7 6	1 10 0
Sim. & Jack Prop., g	"	5,000,000	5	0 0	3 6 Dec., 1898	4 15 0	4 15 6
Sim. & Jack West, g	"	400,000	1	0 0	.....	2 17 6	3 0 0
Sim. & Jack East, g	"	70,0 0	1	0 0	.....	2 16 3	2 18 9
Wemmer, g	"	80,000	1	0 0	15 0 Nov., 1898	11 2 6	11 7 6
Wolhuter, g	"	860,000	4	0 0	6 0 Aug., 1898	5 2 6	5 5 0
Worcester, g	"	100,000	1	0 0	3 0 Oct., 1898	2 15 0	3 0 0

* Dividend pending.

PARIS.

Nov. 10.

NAME OF COMPANY	Country.	Product.	Capital Stock.	Par value.	Latest divs.	Prices. Op'ning	Prices. Closing.
			Francs.	Fr.	Fr.	Fr.	Fr.
Aciéries de Creusot	France	Steel mfrs	27,000,000	2,000	75.00	2,120.00	2,145.00
" " Firminy	"	" "	4,000,000	500	85.00	3,247.50	3,220.00
" " Fives-Lille	"	" "	12,000,000	500	35.00	725.00	545.00
" " Huta-Bank	Russia	Iron & steel	.....	500	.....	4,580.0	4,570.00
" " la Marine	France	Steel mfrs	20,000,00	500	40.00	1,585.00	1,588.00
" " Longwy	"	" "	.....	500	35.00	1,160 0	1,09 .00
Anzin	"	Coal	.....	.....	190.00	5,475.00	5,550.00
Blache-St. Vaast	"	Steel	.....	1,000	160 00	3,800.00	3,800.00
Boieo	Lower Cal	Copper	.....	500	93.50	1,865. 0	1,875.00
Briansk	Russia	Coal & Iron	.....	500	.....	1,283.0	1,275.00
Bruay	France	Coal	3,0,5,,00	400	900 00	38,00 .00	38,5 0.00
Cape Copper	"	Copper	15,000,000	50	1.50	143 50	143 5
Champ d'Or	"	Gold	3,375,000	25	.....	44.00	50.00
Courrieres	France	Coal	600,0.00	300	60.00	2,165.00	2,160.00
De Beers Consolidated	S. Africa	Diamonds	98,750,00	125	15.63	639 50	659.00
Denain-Anzin	France	Steel	.....	500	20.00	791.00	795.0
Dombrowa	Russia	Coal	.....	500	12.50	895.0	870.00
Donetz	"	Steel	.....	.....	.....	1,045.0	1,060 0
Dourges	"	Coal	.....	1,000	300.00	21,800 00	21,850.00
Dynamite Centrale	France	Explosives	.....	500	12.50	490 00	515 0
Epinac	"	Coal	.....	2,500	20.83	800.00	800.00
Escombrera-Bleyberg	Spain	Lead	.....	500	85.00	1,10 .0	1,,95.0
Fraser River	Brit. Col'mb	Gold	250,0.0	25	.....	10.25	8.50
Huanchaca	Bolivia	Silver	40,0,0,0	125	5.00	31.00	40 00
Langlaagte Estate	S. Africa	Gold	11,750,000	25	11.25	79 50	79.00
Lazunas	Chile	Nitrates	16,250,000	125	12.50	30.00	30.00
Laurium	Greece	Zinc & lead	16,800,000	500	31.00	630.00	620.00
Lautaro	Chile	Nitrates	13,750,000	125	.....	05.0	105.00
Maifidano	Italy	Zinc	12,500,000	500	40 00	1,140.0	1,140.00
Metaux, Cie. Fran. de	France	Metal d'lers.	25,000,0,0	500	31.00	6 5.0	660.00
Mokta-el-Hadid	Algeria	Iron	18,312,500	500	40.00	1,080.00	1,080 00
Napthe Baku	Russia	Petroleum	.....	.....	.....	671.50	686.0
Napthe, Le	"	"	.....	.....	.....	2 625.00	2,625.0
Napthe Nobel parts	"	"	.....	.....	.....	465. 0	512.00
Nickel	N. Caled'nia	Nickel	6,360,0,0	500	30.00	9,20 .00	10,200.00
Paccha-Jaspampa	Chile	Nitrates	9,000,000	125	.....	31.00	310 00
Penarroya	Spain	Coal, etc	.....	500	65.00	12 50	12.50
Rebecca	Colo'do, U.S.	Gold	5,000,000	25	.....	2,550.01	2,550 01
Rio Tinto	Spain	Copper	40,625,000	125	47.70	4.15	4 50
" " preferred	"	"	40,625,000	125	.....	776.50	788.0
Rive-de-Gier	France	Coal	.....	.....	.....	15 .0	125.00
Robinson	S. Africa	Gold	68,750,000	125	12.50	23.50	23 00
St. Etienne	France	Coal	.....	.....	18.00	224.00	221 50
Salines de l'Est	France	Salt	.....	500	11.50	450 00	465.00
Salines du Midi	France	" etc	.....	500	20.00	250.0	250.00
Sels Gem. de la Rus. Mer	Russia	" etc	.....	500	25.00	925.00	925.00
Tharsis	Spain	Copper	33,750,000	50	8.75	5 0.00	517.00
Vicoigne-Neux	France	Coal	.....	1,000	700 00	193 00	199.50
Vieille Montagne	Belgium	Zinc	9,000,000	80	30.00	23,80 .00	23,850.0
						732.50	740.0

MEETINGS.

NAME OF COMPANY.	Location	Meeting.	Date.	Place.
Alma	Utah	Annual.	Dec. 5	Salt Lake City, Utah
Andes	Nevada	"	Dec. 19	309 Montgomery street, San Francisco, Cal.
Annie Con	Utah	"	Dec. 9.	Eureka Utah
Arcadia	Colorado	"	Jan 6	Colorado Springs, Colo.
Centennial	Michigan	Special.	Dec. 7	Boston, Mass.
Combination	Montana	"	Jan. 12	Butte Montana.
Consolidation Coal	Maryland	Annual.	Dec. 14	Baltimore, Md
Copper Queen Con	Arizona	"	Dec 17.	Salt Lake City, Utah.
Cripple Cr'k Gold	Colorado	"	Dec 7	Denver, Colo
Detroit	Utah	Special.	Dec. 6	8 Commercial Block Salt Lake City, Utah.
Eureka Con	Nevada	Annual.	Dec. 20	310 Pine street San Francisco, Cal.
Geyser	Colorado	Special	Dec 10	Silver Cliff, Colo.
God Mountain	Montana	Annual.	Dec. 8	Butte, Mon t.
Gould & Curry	Nevada	"	Dec. 20.	302 Montgomery street, San Francisco, Cal.
Head C. & Tr.	California	"	Dec. 14	318 Pine street, San Francisco, Cal.
Mexican	Nevada	"	Dec. 6	San Francisco Cal
Mt Diablo	California	"	Dec. 20	318 Pine street, San Francisco, Cal
New Zealand	Colorado	Spec l.	Dec. 15,	Room 3, Hughes Block, Denver, Colo.
Old Bonanza	California	Annual	Dec. 8	64 Crocker Bldg., San Francisco Cal.
Santa Rosalia	California	"	Dec. 15	310 Pine street, San Francisco, Cal.
Tintic	Utah	Special.	Dec. 13.	314 Atlas Block, Salt Lake City, Utah.

DIVIDENDS.

NAME OF COMPANY.	Current dividends. Date.	Current dividends. Am't.	Paid since Jan. 1, 1898.	Total to date.
†Ætna Con	.....	.....	$30,000	$150,060
†Alaska-Mexican	.....	.....	90,000	317,031
†Alaska Treadwell	.....	.....	575,000	3,925,000
Alice, Mont	.....	.....	20 000	1,075,000
†American Gold	.....	.....	54,000	362,000
†Anchoria-Leland	Nov.15	6,000	66,000	168,000
Anaconda Copper	Nov. 1	$1,500,000	3,000,000	8,250,000
†Argonaut	.....	.....	180,000	180,000
Associated, Colo	Nov. 3	12,500	50,000	50,000
Atlantic	.....	.....	40,000	780,000
Aurora Iron	.....	.....	50,000	750,000
Boston & Montana	Nov 21	750,000	1,950,000	9,125,000
†Bald Butte	Nov.10	7,500	82,500	634,648
Breece	Dec. 1	10,000	10 000	30,000
†Bull.-Beck & Ch'n	Nov.15	10,000	80,000	2 318,400
†Bunker Hill & S	Nov. 4	21,000	207,000	579,000
Calumet & Hecla	Dec. 29	1,000,000	5,000,000	55,850,000
†Central Lead	Nov.	5,000	49,000	77,000
Charleston, S. C.	Dec. 1	150,000	30,000	180,000
Colorado Sm.	.....	.....	250,000	1,845,000
†Crowned K. & Ariz	.....	.....	96,000	208,000
Deer Trail, Wash.	Nov.25	2,500	5,000	5,000
De Lamar	.....	.....	115,200	2,451,600
†Elkton, Con	Nov.21	20,000	220,000	65 ,961
†Empire State Ida	Nov.15	12,051	49,587	49,587
Enterprise, Colo	.....	.....	90,000	900,000
Florence, Mont	.....	.....	5 000	137,530
Geyser Marion	.....	.....	33,000	96 000
†Gold Coin, Vict	Nov.25	10,0.0	110,000	134,000
†Golden Cycle	.....	.....	50,000	148,30.
Golden Reward	.....	.....	15,000	155,000
†Grand Central, Ut	Nov.10	31,250	187,500	187,500
†Highland	Nov.17	20,000	220.00.	3,764,718
Hope of St. Louis	.....	.....	20,000	762 252
Holy Terror	.....	.....	81,000	117,000
†Homestake	Nov.25	62,500	573,750	7,118 750
†Horn Silver	.....	.....	60,000	5,210,000
Iron Mountain	.....	.....	10,000	507 .50
Iowa	.....	.....	15,000	9 .00
†Jamison	.....	.....	39,000	39,000
†Jersey Leas. Colo	.....	.....	11,072	11,072
Lillie	.....	.....	.....	.....
Mammoth	Dec. 1	$20,300	200,000	1,350,000
†Mercur	Nov.21	25,000	330,000	1,21 6,000
†Minnesota Iron	.....	.....	990,000	4,735,000
*Modoc	Dec.24	10,000	90,000	10 ,000
Montana, Lt'd	.....	.....	35,410	2,997,557
†Mont. Ore Pur	.....	.....	160,000	800,000
Moon-Anchor	Nov. 1	45,000	150,000	261,0.0
Morning Star	.....	.....	69,600	666,600
Mt. Rosa	.....	.....	20,000	60,000
Mountain Copper	.....	.....	31,250	93,750
†Napa Con	.....	.....	60,000	350,000
†New Idria	.....	.....	50,000	800,000
N. Y. & Hond. R	.....	.....	90,000	945,000
North Star, Cal	Nov. 1	50,000	50,000	500,000
Osceola	Dec.20	200,000	300,000	2,522,500
†Parrot	Dec. 1	69,000	413,940	2,138,898
†Pennsylvania	Nov.	2,575	25,750	49,075
Pioneer	Dec.15	12,500	50,000	50,000
†Portland	Nov.15	60,000	510,000	2,167,089
Quincy	.....	.....	650,000	10,120,000
Raven	.....	.....	20,000	20,000
†Republic, Wash	Dec.10	30,000	90,000	90,000
Sacramento	.....	.....	40,000	57,000
†Silver King	Nov.10	37,500	412,500	1,702,50
Small Hopes	.....	.....	25,000	3,300,000
†Smuggler	Nov.15	10,000	110,000	1,085,000
So. Eureka, Cal	.....	.....	12,000	12,000
South Swansea	.....	.....	30,000	104,950
St. Joseph Lead	Dec.21	37,500	112,500	2,781,500
Standard Con	.....	.....	27,0.0	5,674,040
Stroag	.....	.....	150,000	420,000
†Swansea	Nov 10	5,000	55,000	126,500
†amarack	Dec.28	240,000	440,000	5,570,000
Victor	Dec. 1	100,000	350 000	1,155,000
†Vindicator	.....	.....	137,875	137,875
*War Eagle, B. C.	Nov.15	26,250	151,500	151,500
†Wolverine	.....	.....	60,000	60,000
†Yellow Aster	Nov.14	10,000	119,000	158,783
Totals			$4,510,629	$20,302,134	163,632,963

* November dividend paid.

ASSESSMENTS.

NAME OF COMPANY.	Location.	No.	Delinq.	Sale.	Amt.
Alta	Nev	60	Nov. 22	Dec. 20	.05
Alpha	"	21	" 28	" 19	.03
*Alaska	Utah		Dec. 13	" 27	.01
*Arrastraville	Cal	2	" 17	Jan. 17	.10
Best & Belcher	Nev	65	Nov. 21	Dec 13	.10
Challar	"	47	" 15	" 7	.10
Confidence	"	31	" 24	" 14	.10
Con. Imperial	"	41	" 15	" 6	.01
Con. St. Gothard	Cal	16	Dec. 14	" 30	.10
Crown Point	Nev	75	Nov. 18	" 9	.10
†Eureka C. Drift	Cal	14	" 25	" 11	.03½
Gould & Curry	Nev	85	Dec. 8	" 29	.10
Great West. Q.	Cal	4	" 16	Jan. 16	.15
Justice	Nev	63	Nov. 14	Dec. 5	.10
*Little Pittsburg	Utah		Dec. 1		.01
Marguerite	Cal	11	Nov. 7	Dec. 5	.10
May Day	Utah		Jan. 3	Jan. 22	.00½
Meteor	"		Oct 31	Dec. 6	.00½
Mexican	Nev	60	Nov. 22	" 13	.10
Morgan (Mec'rs)	Utah	2	Dec. 12	Jan. 5	.03
Mt. Diablo	Nev	6	Nov. 30	Dec. 27	.10
*No. Gould & Curry	Nev	21	Dec. 20		.10
*Alaska	"	31	" 28	Dec. 28	.10
Occidental Con	Cal	3	Nov. 12	" 10	.50
Omaha Con	"	1	Dec. 14	Jan. 4	.05
Overman (New)	Nev	54	" 5	Dec 28	.10
Poto-i	"	7	Nov. 21	" 12	.002
Reward	Cal				
Seg Belcher & Mides	Nev	22	" 28		.03
Snowflake	Utah		" 18	Dec. 5	.01
South Eureka	Cal		Dec 16		.03
Sunbeam Con	Utah	19	Nov. 22	Dec. 10	.01

* New assessment. † Former assessment rescinded.

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.			Dividends. Total Paid.	Dividends. Date and Amount of Last.		
1	Adams, s. l. c.	Colo..	$1,500,000	150,000	$10	*	.....	....	.....	$693,500	Oct...	1895	.04
2	Etna Cons., q.	Cal ..	500,000	100,000	5	*	.....	....	.....	150,000	Oct...	1898	.10
3	Alaska-Mexican, g.	Alask	1,000,000	200,000	5	.....	.....	....	.....	293,031	July..	1898	.10
4	Alaska-Treadwell, g.	Alask	5,000,000	200,000	25	*	.....	....	.....	3,550,000	July..	1898	.37½
5	Alice, g. s.	Mont.	10,000,000	400,000	25	*	.....	....	.....	1,075,000	April.	1898	.05
6	American Gold, g. s. c. l	Colo..	3,000,000	300,000	10	*	.....	....	.....	362,000	Oct...	1898	.09
7	Anaconda Copper	Mont.	30,000,000	1,200,000	25	.....	.....	....	.....	8,250,000	Nov.	1898	1.25
8	Anchoria-Leland, g.	Colo..	600,000	600,000	1	*	.....	....	.....	168,000	Nov.	1898	.01
9	Argentum Juniata, g. s. l	Colo..	2,600,000	1,300,000	2	*	.....	....	.....	39,000	July..	1895	.03
10	Associated, g.	Colo.	1,250,000	1,250,000	1	*	.....	....	.....	50,000	Nov..	1898	.01
11	Atlantic, c.	Mich.	1,000,000	40,000	25	.....	.....	....	.....	780,000	Feb..	1898	1.00
12	Aurora, l.	Mich.	2,500,000	100,000	25	*	.....	....	.....	750,000	May..	1898	.50
13	Bald Butte	Mont.	250,000	250,000	1	*	.....	....	.....	627,148	Oct ..	1898	.03
14	Bangkok-Cora Bell, s. l.	Colo..	600,000	600,000	1	.....	.....	....	.....	107,510	July..	1896	.01
15	Big Six, g. s.	Colo.	500,000	500,000	1	.....	.....	....	.....	15,000	May..	1898	.00½
16	Boston & M. Cons., g. s. c	Mont.	3,750,000	150,000	25	*	.....	....	.....	9,125,000	Nov..	1898	5.00
17	Breece, l.	Colo..	5,000,000	200,000	25	.....	.....	....	.....	30,000	Dec..	1898	.05
18	Bullion Beck & Champ.	Utah.	1,000,000	100,000	10	*	.....	....	.....	2,308,400	Oct..	1898	.10
19	Bunker Hill & S., s. l.	Idaho	3,000,000	300,000	10	.....	.....	....	.....	579,000	Nov.	1898	.07
20	Calumet & Hecla, c.	Mich.	2,500,000	100,000	25	.....	.....	....	.....	54,850,000	Sept..	1898	10.00
21	Cariboo, g.	B. C..	800,000	800,000	1	.....	.....	....	.....	236,965	Aug..	1898	.02
22	Center'l-Eureka, g. s. l. c	Utah.	1,500,000	30,000	50	30,000	Mar..	1889	1.00	2,010,000	Mar..	1897	1.00
23	Central Lead, l.	Mo..	1,000,000	10,000	100	*	.....	....	.....	77,000	Nov..	1898	.50
24	Champion, g. s.	Cal..	340,000	34,000	10	.....	.....	....	.....	296,200	April.	1898	.25
25	Charleston, p. r.	S. C..	1,000,000	10,000	100	*	.....	....	.....	165,000	Sept..	1898	1.50
26	Colorado, Sm., g. s. c.	Mont.	1,000,000	100,000	10	*	.....	....	.....	1,595,000	July..	1898	.50
27	** †Cons. Cal. & Va	Nev..	540,000	216,000	2½	678,000	July..	1898	.25	3,894,000	Feb..	1895	.25
28	Coptis, g. s.	Nev..	10,000,000	100,000	100	.....	.....	....	.....	77,000	Feb..	1895	.01
29	Crowned King, g. s. l.	Ariz .	6,000,000	600,000	10	*	.....	....	.....	208,000	Oct...	1898	.02
30	Dalton & Lark, s. l.	Utah.	2,500,000	2,500,000	1	.....	.....	....	.....	87,500	Aug..	1896	.00½
31	Daly, s. l.	Utah.	3,000,000	150,000	20	.....	.....	....	.....	2,925,000	Mar..	1897	.25
32	†Deadwood-Terra, g.	S. D..	5,000,000	200,000	25	*	.....	....	.....	1,350,000	May..	1898	.15
33	De Lamar, g. s.	Idaho	2,000,000	400,000	5	.....	.....	....	.....	2,451,690	May..	1898	.20
34	Della S.	Colo..	1,000,000	1,000,000	1	.....	.....	....	.....	60,000	Jan..	1897	.10
35	Dutch, g	Cal ..	1,500,000	150,000	10	.....	.....	....	.....	39,000	Feb..	1898	.01½
36	Elkton Cons., g.	Colo..	1,250,000	1,250,000	1	.....	.....	....	.....	636,961	Oct...	1898	.01½
37	El Paso, g. s.	Colo..	650,000	650,000	1	.....	.....	....	.....	12,093	Jan..	1898	.01
38	Enterprise, s. l.	Colo..	500,000	500,000	1	.....	.....	....	.....	900,000	Sept..	1898	.05
39	Empire State-Idaho.	Idaho	1,000,000	100,000	10	.....	.....	....	.....	35,000	Nov..	1898	.10
40	Fern.	B. C..	200,000	200,000	1	.....	.....	....	.....	10,000	Jan..	1898	.05
41	Florence, s.	Mont.	2,500,000	500,000	5	*	.....	....	.....	137,539	Aug..	1897	.01
42	Franklin, c.	Mich.	1,000,000	40,000	25	.....	.....	....	.....	1,240,000	Jan..	1894	2.00
43	Galena, g. s. l.	Utah.	1,000,000	100,000	10	.....	.....	....	.....	71,000	Jan..	1897	.05
44	Garfield-Grouse, g.	Colo..	1,200,000	1,200,000	1	*	.....	....	.....	24,000	Feb..	1897	.01
45	Geyser-Marion. g.	Utah.	1,500,000	300,000	5	.....	.....	....	.....	96,000	Sept..	1898	.02
46	Gold Coin, g. s.	Colo..	1,000,000	200,000	5	*	.....	....	.....	160,000	Nov..	1897	.05
47	Gold Coin of Victor, g.	Colo..	1,000,000	1,000,000	1	.....	.....	....	.....	120,000	Oct..	1898	.01
48	Golden Cycle, g.	Colo..	1,000,000	200,000	5	.....	.....	....	.....	148,300	Oct...	1898	.02½
49	Golden Fleece, g. s.	Colo..	600,000	600,000	1	*	.....	....	.....	569,179	Feb..	1897	.01
50	Gold & Globe, g.	Colo..	750,000	750,000	1	.....	.....	....	.....	51,625	July..	1897	.00⅝
51	Golden Reward, g	S. D..	1,000,000	100,000	10	.....	.....	....	.....	155,000	Feb..	1898	.15
52	Grand Central, g.	Utah.	250,000	250,000	1	.....	.....	....	.....	187,500	Nov.	1898	.12½
53	Hall Mines, Ltd	B. C..	1,250,000	250,000	5	.....	.....	....	.....	160,000	May .	1898	.25
54	Hecla Cons., g. s. c. l.	Mont.	1,500,000	30,000	50	*	.....	....	.....	2,175,000	Feb..	1897	.50
55	Helena & Frisco, s. l	Idaho	2,500,000	500,000	5	*	.....	....	.....	475,000	Aug..	1896	.04
56	Highland, g.	S. D..	10,000,000	100,000	100	304,000	.....	....	.....	3,764,718	Nov.	1898	.20
57	Holy Terror, g.	S. D..	500,000	500 000	1	.....	.....	....	.....	117,000	Sept..	1898	.03
58	Homestake, g.	S. D..	12,500,000	125,000	100	200,000	July..	1878	1.00	7,118,750	Nov..	1898	.50
59	Hope of St. Louis, s.	Mont.	1,000,000	100,000	10	*	.....	....	.....	762,254	Mar..	1898	.10
60	Horn-Silver, g. s. c. sp. l.	Utah.	10,000,000	400,000	25	*	.....	....	.....	5,210,000	Oct...	1898	.05
61	Idaho.	B. C..	500,000	500,000	1	.....	.....	....	.....	264,000	May..	1898	.05
62	Iowa, g.	Colo..	1,000,000	1,000,000	1	.....	.....	....	.....	95,000	June.	1898	.00½
63	Iron Mountain, g. s. l. i.	Mont.	5,000,000	500,000	10	*	.....	....	.....	507,500	April.	1898	.02
64	Isabella, g.	Colo..	2,250,000	2,250,000	1	.....	.....	....	.....	270,000	June.	1897	.00½
65	Kearsarge, c.	Mich.	1,000,000	40,000	25	190,000	Oct...	1887	1.00	160,000	Aug..	1897	1.00
66	Kennedy, g.	Cal ..	10,000,000	100,000	100	.....	.....	....	.....	1,796,000	Aug..	1898	.48
67	Last Chance, s. l.	B. C..	500,000	500,000	1	*	.....	....	.....	40,000	Jan..	1897	.04
68	Le Roi.	B. C..	2,500,000	500,000	5	.....	.....	....	.....	825,000	April.	1898	.10
69	§§§Lillie, g.	Colo.	1,250,000	250000	5	.....	.....	....	.....	146,110	Oct...	1898	.01
70	Mammoth, g. s. c.	Utah.	10,000,000	400,000	25	*	.....	....	.....	1,339,000	Nov.	1898	.05
71	Mayflower, g.	Cal .	1,200,000	60,000	20	6,000	Sept.	1898	.05	166,824	Dec..	1895	.10
72	Mercur, g.	Utah.	5,000,000	200,000	25	*	.....	....	.....	1,191,000	Oct...	1898	12½
73	Minnesota Iron, i.	Minn.	16,500,000	165,000	100	*	.....	....	.....	4,735,000	Oct...	1898	1.50
74	Modoc, g.	Colo..	1,000,000	1,000,000	1	.....	.....	....	.....	110,000	Dec..	1898	.01
75	Mollie Gibson, s.	Colo..	5,000,000	1,000,000	5	20,000	Jan..	1891	.02	4,080,000	Jan..	1895	.05
76	Montana, Ltd., g. s.	Mont.	3,300,000	660,000	5	*	.....	....	.....	2,997 557	May .	1898	.05⅜
77	Montana Ore Purchas'g	Mont.	2,500,000	80,000	25	*	.....	....	.....	800,000	Oct...	1898	1.00
78	Moon-Anchor, g.	Colo..	600,000	600,000	1	*	.....	....	.....	261,000	Nov.	1898	.07½
79	Moose, g.	Colo..	600,000	600,000	1	.....	.....	....	.....	186,000	Jan..	1896	.01
80	Morning Star, g.	Cal...	240,000	2,400	100	70,800	Feb..	1885	.75	666,600	June.	1898	5.00
81	Mt. Rosa, g.	Colo..	1,000,000	1,000,000	1	.....	.....	....	.....	60,000	Jan..	1898	.02
82	Mountain Copper	Cal ..	6,250,000	250,000	25	.....	.....	....	.....	93,750	Sept..	1898	.62½
83	Napa Cons., q.	Cal ..	700,000	100,000	7	*	.....	....	.....	950,000	Oct...	1898	.20
84	New Idria Quicksilver.	Cal...	500,000	100,000	5	.....	.....	....	.....	80,000	Oct...	1898	.20
85	N. Y. & Hon Rosario, s. g.	C. A..	1,500,000	150,000	10	*	.....	....	.....	945,000	Oct...	1898	.10
86	North Star, g.	Cal ..	2,000,000	200,000	10	20,000	June.	1895	.02	500,000	Nov..	1898	.25
87	Ontario, s. l.	Utah.	15,000,000	150,000	100	.....	.....	....	.....	13,557,500	Nov.	1897	.75
88	Osceola, c.	Mich.	2,500,000	100,000	25	*	.....	....	.....	2,522,500	Dec..	1898	2.00
89	Parrot, c.	Mont.	2,300,000	230,000	10	*	.....	....	.....	2,069,898	Oct...	1898	.30
90	Pennsylvania Cons.	Cal...	5,150,000	51,500	100	14,000	Feb..	1892	.05	46,500	Oct...	1898	.05
91	Pioneer g.	Colo..	1,000,000	100,000	10	.....	.....	....	.....	50,000	Dec..	1898	.12½
92	Portland, g.	Colo..	3,000,000	3,000,000	1	*	.....	....	.....	2,167,890	Nov.	1898	.02
93	Princess, g.	Colo..	1,000,000	1,000,000	1	.....	.....	....	.....	45,000	Feb..	1897	.00½
94	Quincy, c.	Mich.	2,500,000	100,000	25	*	.....	....	.....	10,120,000	Aug..	1898	3.50
95	Rambler-Cariboo	B. C..	1,000,000	1,000,000	1	.....	.....	....	.....	40,000	April.	1897	.02
96	Raven, g.	Colo..	1,500,000	1,500,000	1	.....	.....	....	.....	20,000	Mar.	1898	.01
97	Reco, s. l.	B. C..	1,000,000	1,000,000	1	.....	.....	....	.....	207,500	Jan..	1898	.10
98	Republic, g.	Wash	1,000,000	1,000,000	1	.....	.....	....	.....	60,000	Nov.	1898	.03
99	Sacramento, g.	Utah.	5,000,000	1,000,000	5	.....	.....	....	.....	57,000	Sept..	1898	.00½
100	St. Joseph, l.	Mo..	3,000,000	300,000	10	*	.....	....	.....	2,747,000	Sept..	1898	1.50
101	Santa Rosalia, g. s.	Cal...	100,000	100,000	1	.....	.....	....	.....	125,000	Feb..	1898	.10
102	Silver King, g. s. l.	Utah.	3,000,000	150,000	20	3,000	Jan..	1895	.02	1,762,500	Nov.	1898	.25
103	Slocan Star.	B. C..	1,000,000	2,000,000	0.50	.....	.....	....	.....	400,000	Mar.	1897	.05
104	Small Hopes, s.	Colo..	5,000,000	250,000	20	*	.....	....	.....	3,300,000	June.	1898	.10
105	Smuggler Union, g. s.	Colo..	5,000,000	50,000	100	.....	.....	....	.....	150,000	Oct...	1896	1.00
106	Smuggler. s. l. z.	Colo..	1,000,000	1,000,000	1	.....	.....	....	.....	1,075,000	Oct...	1898	.01
107	South Swansea, s. l.	Utah.	150,000	150,000	1	.....	.....	....	.....	104,999	Aug..	1898	.05
108	§§Standard Cons., g. s.	Cal...	20,000,000	200,000	100	.....	.....	....	.....	5,674,940	Aug..	1898	.10
109	Swansea, s. l.	Utah.	500,000	100,000	5	.....	.....	....	.....	126,500	Nov.	1898	.05
110	Tamarack, c.	Mich.	1,500,000	60,000	25	.....	.....	....	.....	5,330,000	June.	1898	3.00
111	Tomboy, g.	Colo..	2,000,000	200,000	10	*	.....	....	.....	600,000	Dec..	1896	.10
112	Union, g.	Colo..	1,250,000	1,250,000	1	.....	.....	....	.....	73,000	June.	1896	.01
113	Union Leasing.	Colo..	500,000	500,000	1	.....	.....	....	.....	340,000	July.	1895	.04
114	Utah.	Utah.	1,000,000	100,000	10	*	.....	....	.....	177,000	Dec..	1897	.01
115	Victor, g.	Colo..	1,000,000	200,000	5	*	.....	....	.....	1,155,000	Dec..	1898	.50
116	Vindicator, Cons. g.	Colo..	1,500,000	1,015,000	1	.....	.....	....	.....	135,875	Oct.	1898	.05
117	§§ War Eagle, Cons.	B. C..	2,000,000	1,750,000	1	.....	.....	....	.....	151,500	Nov.	1898	.01½
118	Western Mine Enterp.	Mont.	500 000	500,000	1	*	.....	....	.....	48,680	Jan..	1898	.20
119	Whitewater.	B. C..	625,000	125,000	5	.....	.....	....	.....	194,000	April.	1898	.32
120	Wolverine, c.	Mich.	1,500,000	60,000	25	180,000	Mar..	1895	1.00	60,000	Oct...	1898	1.00
121	Yellow Aster, g.	Cal...	1,000,000	100,000	10	*	.....	....	.....	148,789	Oct...	1898	.10

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Val	Assessments. Total Levied.	Assessments. Date and Amount of Last.		
1	Ada Cons., s. l.	Utah.	$100,000	100,000	$1	$3,333	Nov..	1895	.01½
2	Alamo, g. c. i.	Utah.	125,000	125,000	1	937	Mar..	1898	.00¼
3	Alliance, g. s. l.	Utah.	100,000	100,000	1	200,000	Dec..	1895	.10
4	Allonez, c.	Mich.	2,000,000	80,000	25	80,000	June.	1890	1.00
5	** Alpha Cons., g. s.	Nev..	105,000	105,000	1	316,050	Nov.	1898	.03
6	** Alta, s.	Nev..	216,000	108,000	2	3,664,910	Nov.	1898	.05
7	American Quartz, g.	Cal..	1,000,000	100,000	10	1,000	Feb..	1897	.01
8	Anchor, g. s. l.	Utah.	1,500,000	150,000	10	560,000	Aug..	1893	.20
9	** Andes, g.	Nev..	300,000	100,000	3	1,195,000	Sept.	1898	.05
10	Baliol, g.	Cal..	1,000,000	100,000	10	55,000	Mar..	1898	.30
11	** Belcher, s. g.	Nev..	312,000	104,000	3	3,514,800	Nov..	1898	.10
12	Belle Isle.	Nev..	10,000,000	100,000	100	240,271	July..	1896	.10
13	Benton Con. s.	Nev..	10,800,000	108,000	100	587,023	June.	1897	.25
14	**Best & Belcher, g. s	Nev..	302,400	100,800	3	2,589,643	Nov..	1898	.10
15	Bogan.	Utah.	1,250,000	125,000	10	26,875	Dec..	1897	.01½
16	Boston & Cp. Ck., g.	Colo.	400,000	200,000	2	20,000	Aug..	1898	.10
17	Brunswick Cons., g.	Cal..	500,000	500,000	1	160,000	July.	1897	.03
18	** Bullion, s. g.	Nev..	100,000	100,000	1	3,120,000	Nov..	1898	.05
19	Caledonia.	Nev..	300,000	300,000	3	3,210,000	ov..	1897	.10
20	Centennial, c.	Mich.	2,500,000	100,000	25	460,000	Mar..	1898	3.00
21	Central Eureka, g.	Cal..	4,000,000	400,000	10	78,000	Nov..	1898	.03
22	**Challenge Cons, s. g.	Nev..	150,000	50,000	3	427,500	May .	1898	.10
23	** Chollar, g. s	Nev..	336,000	112,000	3	2,048,600	Nov ..	1898	.10
24	** Confidence, g. s.	Nev..	74,880	24,960	3	540,126	Nov.	1898	.10
25	**Cons. Imperial, g. s	Nev..	500,000	500,000	1	2,246,000	Nov.	1898	.01
26	** Con. New York	Nev..	100,000	100,000	1	160,500	Nov.	1898	.03
27	** Crown Point, g. s.	Nev..	300,000	100,000	3	2,970,000	Nov.	1898	.10
28	Dalton, s. l.	Utah.	2,500,000	500,000	5	7,500	Sept.	1898	.00½
29	Dexter.	Nev..	1,000,000	200,000	5	30,000	Apr..	1898	.15
30	Eagle, g. s.	Cal..	500,000	100,000	5	5,000	Dec..	1896	.05
31	Eagle, g. s.	Ore..	1,000,000	100,000	10	6,000	Oct..	1898	.01½
32	Emerald.	Utah	300,000	300,000	1	3,000	Oct...	1898	.00⅝
33	Eureka Cons., g. s. l.	Nev..	1,000,000	50,000	20	585,000	Sept.	1898	.20
34	Eureka Con. Drift, g.	Cal..	500,000	500,000	1	172,500	Nov.	1898	.00½
35	** Exchequer, g. s.	Nev..	1000,000	100,000	1	1,020,000	Dec..	1897	.05
36	Four Aces.	Utah.	250,000	250,000	1	5,000	Mar .	1898	.01
37	Galena.	Utah.	1,000,000	100,000	10	10,000	Oct..	1898	.10
38	Geyser, s. l.	Colo.	5,000,000	500,000	10	1,075,000	Aug..	1898	.10
39	Gold Belt, g. s.	Utah.	500,000	500,000	1	3,012	July..	1896	.00½
40	Golden Fleece Grav. g	Cal..	130,000	130	1000	56,260	Mar..	1897	2.00
41	Gold King, g.	Colo..	1,000,000	1,000,000	1	*	.....	....	.....
42	** Gould & Curry	Nev..	324,000	108,000	3	4,614,350	Dec..	1898	.10
43	Great Eastern, g.	Utah.	1,500,000	300,000	5	5,000	Oct..	1898	.00½
44	Hale & Norcross, g. s.	Nev..	11,300,000	112,000	100	5,688,280	Apr..	1898	.10
45	Horse Shoe Bar Cons.	Cal..	6,000,000	60,000	100	82,800	Aug .	1898	.10
46	Idlewild, g.	Cal..	1,000,000	100,000	10	*	.....	....	.....
47	Iron Silver, s. l.	Colo.	10,000,000	500,000	20	*	.....	....	.....
48	Jackson, l.	Mich.	300,000	12,000	25	*	.....	....	.....
49	Jupiter, g.	Cal..	2,000,000	20,000	100	80,000	Feb..	1898	.20
50	** Julia Con.	Nev..	110,000	110,000	1	1,495,500	Feb..	1897	.05
51	** Justice, g. s. c.	Nev..	210,000	105,000	2	3,646,750	Nov..	1898	.10
52	Kentuck.	Utah.	600,000	300,000	2	3,000	Aug..	1898	.10
53	** Kentuck Cons., s.	Nev..	105,000	105,000	1	125,300	June.	1898	.05
54	Keystone, g.	Colo.	1,500,000	1,500,000	1	*	.....	....	.....
55	Lacrosse, g.	Colo.	1,000,000	100,000	10	*	.....	....	.....
56	Little Pittsburg.	Utah.	2,000,000	400,000	5	14,000	Dec..	1897	.00½
57	Lower Mammoth.	Utah.	150,000	150,000	1	15,000	Oct..	1898	.05
58	Lucky Bill.	Utah.	300,000	120,000	2.50	54,600	June.	1898	.01½
59	Marguerite, g.	Cal..	500,000	50,000	10	70,000	Nov..	1898	.10
60	May Day.	Utah.	100,000	400,000	¼	4,000	Jan..	1899	.00½
61	Mayday, g. s.	Cal ..	50,000	50,000	1	5,000	May..	1898	.10
62	Mayflower, g	Colo.	1,000,000	1,000,000	1	*	.....	....	.....
63	Merced, g.	Cal..	1,500,000	100,000	15	200,000	July..	1896	2.00
64	Meteor, s. l.	Utah.	600,000	300,000	2	3,734	Oct...	1898	.00½
65	** Mexican, g. s.	Nev..	302,400	100,800	3	2,258,720	Nov..	1898	.10
66	Monarch, g.	Colo.	1,000,000	1,000,000	1	.....	.....	....	.....
67	Montreal.	Utah.	2,500,000	250,000	10	5,250	Nov..	1897	.00¼
68	Mt. Diablo s.	Nev..	5,000,000	50,000	100	145,000	Nov..	1896	.10
69	Nashville, g.	Cal ..	115,000	11,500	10	2,000	Sept..	1898	.17
70	New Gold Hill.	N. C..	1,750,000	350,000	5	.....	.....	....	.....
71	New Viola, s. l.	Idaho	750,000	150,000	5	*	.....	....	.....
72	North Banner, g. s.	Cal..	1,000,000	100,000	10	21,794	Oct...	1896	.02
73	North Belle Isle, s.	Nev..	10,000,000	100,000	100	523,074	July.	1896	.10
74	No. Gould & Curry.	Nev..	100,000	100,000	1	365,000	June.	1898	.10
75	Northern Light, g.	Utah.	2,000,000	400,000	5	80,000	July.	1898	.10
76	**Occidental Cons g s	Nev..	300,000	100,000	3	475,000	Dec..	1898	.10
77	** Ophir, g. s.	Nev..	324,000	108,000	3	4,662,568	Sept.	1898	.15
78	Opohonga.	Utah.	200,000	100,000	2	1,500	June.	1898	.01
79	Oro Cache, g. s.	S. D..	1,250,000	250,000	5	6,250	July..	1896	.00½
80	Osceola, g.	Cal ..	10,000,000	100,000	100	10,924	Sept..	1898	.01
81	*** Overman, g. s.	Nev..	230,400	115,200	2	4,123,950	May .	1898	.05
82	Peer, s.	Ariz.	10,000,000	100,000	100	215,000	July..	1894	.05
83	Peerless, g.	Nev..	10,000,000	100,000	100	410,000	July..	1894	.05
84	Pine Hill, g.	Cal ..	1,000,000	100,000	10	30,000	July..	1897	.05
85	** Potosi, g. s.	Nev..	336,000	112,000	3	2,157,200	Dec..	1898	.10
86	Puritan, g. s.	Colo.	1,500,000	150,000	10	*	.....	....	.....
87	Quicksilver, pref., q.	Cal ..	4,300,000	43,000	100	*	.....	....	.....
88	Quicksilver, com. q.	Cal ..	5,700,000	57,000	100	*	.....	....	.....
89	Red Mountain, s.	Colo.	300,000	60,000	5	22,500	Mar.	1891	.12½
90	Rescue, g.	Nev..	100,000	10,000	10	4,000	June.	1898	.10
91	Reward, g.	Cal..	64,000	64,000	1	63,680	Nov.	1898	.02
92	Ridge, c.	Mich.	500,000	20,000	25	239,939	Feb.	1897	1.00
93	St. Mary, c.	Mich.	1,000,000	40,000	25	4,000	July.	1895	.05
94	** Savage, g. s.	Nev..	280,000	112,000	2½	7,398,600	Nov.	1898	.10
95	Scorpion, s.	Nev..	100,000	100,000	1	445,000	Dec..	1897	.05
96	**Seg. Belcher & M g s	Nev..	200,000	100,000	2	368,000	Nov.	1898	.03
97	Sevier, g. s.	Utah.	1,250,000	250,000	5	50,000	April.	1897	.04
98	** Sierra-Nevada, g. s	Nev.	300,000	100,000	3	6,706,910	Feb..	1898	.20
99	Silver Age, g. s. l.	Colo.	2,000,000	200,000	10	*	.....	....	.....
100	** Silver Hill, s.	Nev..	108,000	108,000	1	2,220,200	May .	1898	.05
101	Silver King, s.	Ariz..	10,000,000	100,000	100	395,000	Oct ..	1898	.25
102	Silver Queen, c.	Ariz.	5,000,000	200,000	25	*	.....	....	.....
103	Silver State, g.	Colo.	700,000	700,000	1	*	.....	....	.....
104	Silver State, s. g. l.	Utah.	100,000	100,000	1	1,000	Sept.	1897	.00½
105	Siskiyou Con. s.	Cal ..	2,000,000	200,000	10	46,000	Apr..	1898	.01
106	South Fork Con.	Utah.	50,000	50,000	1	5,000	Mar..	1898	.01
107	Star, g. s.	Utah.	1,000,000	200,000	5	1,000	Mar..	1898	.00½
108	Sunbeam Cons.	Utah.	250,000	250,000	1	23,125	Nov.	1898	01
109	Tecumseh, c.	Mich.	1,000,000	40,000	25	40,000	July.	1897	1.00
110	Temonj, g.	Colo.	1,000,000	1,000,000	1	.....	.....	....	.....
111	Tetro	Utah	300,000	300,000	1	15,000

CHEMICALS, MINERALS, RARE ELEMENTS, ETC.—CURRENT PRICES.

NOTE.—These quotations are for wholesale lots in New York unless otherwise specified, and are generally subject to the usual trade discounts. This table is revised up to Dec. 1st. Readers of the ENGINEERING AND MINING JOURNAL are requested to report any corrections needed, or to suggest additions which they may consider advisable. See also Market Review of Chemicals and Minerals.

	Cust. Meas.	Price,
Abrasives—		
Carborundum, f.o.b.		
Niagara Falls grains	lb.	$0.15
Powdered	"	.10
Corundum, N. C.	"	.07@.10
Chester	"	.04½@.05
Emery, Turkish flour	"	.03
Grains	"	.05
Naxos flour	"	.03
Grains	"	.05
Chester flour	"	.03
Grains	"	.05
Peekskill flour	"	.01¾
Grains	"	.02½
Crude, Kuluk, best	lg. ton	18.50
Levant, "	"	22.00
Naxos (Greek) best	"	32.00
Pumice Stone, powdered	lb.	.01½@.1.85
Lump, per quality	"	.01@.40
Rottenstone, ground	"	.02
Lump, according to quality	"	.06@.18
Rouge	"	.17@.30
Tripoli, prepared	sh. ton.	12.00
Acids—Acetic, 30% pure	lb.	.02¾
30% ch. pure	"	.06½
80% pure	"	.09
Glacial, pure	"	.10¾
Chem. pure	"	.21
Benzoic, English	"	1.10
German	"	.48
Boracic, pure cryst	"	.09@.10¼
Powdered	"	.09½@.10¾
Carbolic, cryst. in drums	"	.16
Carbonic, liquid	"	.12½
Chromic, crude	"	.25
Chem. pure	"	.40
Absol. ch. pure	"	1.75
Hydrochloric, ch. pure	"	.08
Hydrofluoric, 36%	"	.03@.04½
48%	"	.05@.06
Best	"	.25
Nitric, chem. pure	"	.10
Sulphuric, 98%	"	.02
Chem. pure	"	.07
Sulphurous	"	.05
Tartaric, cryst	"	.31½@.32
Powder	"	.32@.32½
Alcohol—94%	gal.	2.40@2.44
Refined wood, 95@97%	"	.75@.80
Purified	"	1.20@1.50
Alum—Lump	100 lbs.	1.65
Powdered	"	2.50
Ground	"	1.75
Chrome, com'l	"	3.50
Aluminum—Nitrate	lb.	1.50
Oxide, com'l	"	.20
Pure	"	.80
Chem. pure	"	1.00
Hydrated	"	.05
Sulphate, pure	"	.02
Ammonia—Aqua, 16°	"	.02¾@.03
18°	"	.03@.03½
20°	"	.03½@.04
26°	"	.05½@.06
Ammonium—		
Acetate, cryst	"	.65
Bromide, pure	"	.52@.53
Carbonate	"	.07¼@.07½
Muriate, gran., white	"	.05¼
Lump	"	.08½
Gray	"	.05
Nitrate, white, pure (99%)	"	.09
Antimony—Glass	"	.30@.40
Needle, lump	"	.05@.06
Powdered	"	.07@.08½
Oxide, com'l white, 95%	"	.20
Com'l white, 99%	"	.35
Sulphuret	"	.16
Arsenic—White	"	.04@.04½
Red	"	.07¾@.08
Asphaltum—California		
Ventura	sh. ton	32.00
Cuban, best	"	40.00
Common	"	18.00
Trinidad, refined	"	30.00
Gilsonite, Utah, ordinary	sh. ton	40.00
Select	"	60.00
Barium—Carbonate, lump, 80%	"	25.00
90%	"	27.50
92@94%	"	25.25
96@98%	"	29.00
Powdered, 80%	lb.	.01¾
90%	"	.02
Chloride, com'l	"	.02¼
Chem. pure cryst	"	.05
Chlorate	"	.28
Nitrate, com'l, pow'd	"	.07
Pure, pow'd	"	.07@.08
Oxide, com'l, hyd.cryst	"	.18@.22
Hydrated, pure cryst.	"	.25
Pure, powd	"	.27
Sulphide	"	.40
Sulphate	"	.02¼@.02¾
Barytes—Crude, No. 1	sh. ton	9.00@10.00
No. 2	"	8.00@8.25
No. 3	"	7.75@8.00
Prime White	"	12.00@15.00
American, floated	"	12.50@18.00
Foreign, floated	"	19.50@21.00
Bauxite—Georgia, f.o.b. cars, first grade	lg. ton	3.25@4.50
Second grade	"	3.00
Alabama, f. o. b. cars Rock Run	"	3.85
Benzole—90%	gal.	1.00@1.10
Bismuth—Oxide, hydr.	lb	2.25@2.56
Nitrate cryst	oz.	.09
Bitumen	lb.	.03½@.05
Bone Ash	"	.02¾@.03½
Borax—		
Cryst. and pow'd	"	.07
Calcined	"	.20
Bromine—		
Bulk	"	.45

	Cust. Meas.	Price.
Cadmium—		
Metallic	lb.	1.90@2.00
Sulphide	"	3.25@4.00
Sulphate	oz.	.14
Calcium—		
Carbide, in ton lots, f. o. b. Niagara Falls, N.Y.	lb.	.03@.04
Acetate, pure white	"	.10
Carbonate, ppt	"	.05
Chem. pure	"	.75
Chloride	100 lbs.	.90
Sulphite	lb.	.05
Sulphide	"	.20
Cement—		
Portland, Am., 400 lbs.	bbl.	1.80@2.00
Foreign	"	1.75@2.50
"Rosendale," 300 lbs.	"	.65
Sand cement, 400 lbs.	"	1.85@1.95
Slag cement, imported	"	1.65
Ceresine—		
Orange and Yellow	"	.10@.10½
White	"	.11½@.13½
Chalk—Com'l, lump	sh. ton	2.00@2.10
Ppt	lb.	.04@.04½
French	100 lbs.	.30@.35
Chrome Ore—		
(50% chrome) ex ship	lg. ton	24.50
Clay, China—Am. com.	sh. ton	7.50
Am. best	"	8.50
English, common	"	11.00@12.50
Best grade	"	15.00
Fire, ground, f.o.b. Jersey City, N. J.	"	4.00@5.00
Slip Clay, f.o.b. Albany	"	3.00
Cobalt—Carbonate	lb.	1.50
Nitrate	"	1.30
Oxide	"	1.76@1.85
Sulphate	"	.85
Copperas	100 lbs.	.57½
Copper—Acetate, com'l	lb.	.16@.20
Carbonate	"	.15@.16
Chloride	"	.25
Nitrate, crystals	"	.35
Oxide, black	"	.30
Ppt., pure	"	.50
Red	"	.40
Ppt., pure	"	1.25
Cream of Tarter—crys.	"	.23¼@.23½
Granulated	"	.23¾@.23½
Powdered	"	.23¾@.24
Cryolite	"	.08½
Explosives—		
Blasting powder, A	"	.08
Blasting powder, B	"	.05@.05½
"Rackarock," A	"	.25
"Rackarock," B	"	.18
Judson R.R. powder, by carload	"	.10
Dynamite, (40% nitroglycerine)	"	.15
(50% nitro-glycerine)	"	.17
(60% nitro-glycerine)	"	.19
(75% nitro-glycerine)	"	.23
Glycerine, for nitro (32 2-10° Be.)	"	.10½@.12
Nitro-Benzole	"	.14@.15
Feldspar—Ground	sh. ton	7.00@7.75
Flint—(See Silica).		
Fluorspar—Am. lump	"	7.00
Gravel	"	6.50
Crushed	"	6.00
Ground	"	11.00
Extra fine ground	"	12.50
Foreign, lump	"	8.00@12.00
Ground	"	11.50@14.00
Fuller's Earth—Lump	100 lbs.	.75
Powdered, in bags	"	.82½
Graphite—(See Plumbago).		
Gypsum—		
Am. gr'd (terra alba)	sh. ton	7.00
Fertilizer	"	4.50
Rock	lg. ton	4.00
English and French	"	14.00@16.00
Infusorial Earth—		
Ground, best qualities	"	20.00@.40.00
Iodine—Crude	100 lbs.	2.55
Resublimed	"	2.90@2.95
Iron—Chromate	lb.	.03@.10
Muriate	"	.05
Nitrate, com'l	"	.01@.01½
Pure	"	.03½@.04½
Oxide	"	.02@.12
Scale	"	.01@.03
Kaolin—(See Clay, China).		
Kanit	lg.ton	8.80@9.05
Kryolith—(See Cryolite.)		
Lead—Acetate		
White, broken	lb.	.06½
Com'l, broken	"	.05¾
White, gran	"	.07¾
Nitrate, com'l	"	.06½@.06¾
Chem. pure	"	.35
Lime—Bldg., ab. 250 lbs	bbl.	.65@.75
Finishing	lb.	.75@.80
Magnesite—		
Crude, lump 94%	sh. ton	8.00
Calcined, foreign	"	25.00
Domestic	"	16.00
Magnesium—		
Metallic, ingots (Ger.)	kg.	5.95@6.90
Powdered (Ger.)	"	6.19
Ribbon or wire (Ger.)	"	10.00
Carbonate	lb.	.10
Chloride, com'l	"	.01¾
Fused	"	.20
Nitrate	"	.60
Manganese—		
Crude, powdered, 70@75% binoxide	"	.01¼@.01½
75@85% binoxide	"	.01½@.02½
85@90% binoxide	"	.02½@.03¼
90@95% binoxide	"	.03¼@.05½
Carbonate	"	.16@.20
Chloride	"	.04
Ore, 50%	unit	.21@.22½
Sulphate, powdered	lb.	.25
Pure cryst	"	.40

	Cust. Meas.	Price.
Marble—Flour	sh. ton	8.08
Mercury—Bichloride	lb.	.59@.60
Bisulphate	"	.41
Mica—		
Ground	lb.	.04@.06
Sheets, according to size and quality.		
Mineral Wool—F. o. b. Stanhope, N. J.:		
Slag, ordinary	100 lbs.	1.00
Selected	"	1.67
Extra	"	4.00
Rock, ordinary	sh. ton	37.00
Selected	100 lbs.	4.00
Extra	"	7.00
Monazite—92%	sh. ton	140.00
Nickel—		
Oxide, black No. 1	lb.	1.00
Black No. 2	"	.60
Green, No. 1	"	1.00
No. 2	"	.60
Oils—Black, reduced 29 gr., 25@30%	gal.	.07@.07½
Black reduced 29 gr. 15 cold test	"	.08@.08½
Black reduced 29 gr. zero	"	.11@.12
Black reduced summer	"	.06½@.07
Smith's Ferry, 33@34 gr.	"	.07½@.08½
West Virginia, 29 gr.	"	.22@.24
Cylinder, dark steam ref	"	.08@.13
Dark filtered	"	.11@.16
Light filtered	"	.13@.15½
Extra cold test	"	.21@.25
Gasoline, 86°	bbl.	13.00@14.00
88°	"	15.00@16.00
90°	"	18.00@19.00
Neutral filtered, lemon, 33@34 gr.	gal.	.13@.18½
White, 33@34 gr.	"	.21@.23
Wool grade, 32 gr.	"	.11@.14
Naphtha, crude, 68@72°	bbl.	5.50
70°	"	6.00
Paraffine, high viscosity	gal.	.20@.25
23½@24 gr.	"	.09¼@.09¾
25 gr.	"	.08¼@.08¾
28@32 gr.	"	.06¾@.07¼
Red No. 1	"	.08¾@.09¼
No. 2	"	.08¼@.08¾
Linseed, domestic raw	"	.37@.38
Boiled	"	.39@.40
Calcutta, raw	"	.54
Graphite, lubricating, Am. dry	lb.	.10
In oil	"	.12
Axle grease	"	.08½@.10
Wood grease	"	.05@.06
Ozokerite—Foreign	"	.06@.08
Paints and Colors—		
Benzine, Sumatra	"	.35@.40
Marbled	"	.27@.28
Chrome green, common	"	.05@.06
Extra	"	.14½@.15
Yellow, common	"	.10
Best	"	.25
Silica Graphite, thick	"	.12
Thinned	gal.	1.15
Lampblack—Com'l	lb.	.03@.05
Refined	"	.08@.10
Calcined	"	.12@.20
Fine spirit	"	.20@.35
Litharge, Am. powd.	"	.04¾@.05¼
English flake	"	.07¾@.08
Metallic, brown	"	.05½
Red	"	18.00@20.00
Ocher, Am. best	sh. ton	15.00
Dutch, washed	lb.	.01¾@.05
French, washed	"	.01@.01¾
Orange mineral, Am.	"	.07½@.08
Foreign, as to make	"	.08½@.16¾
Paris green, pure	"	.14½@.21½
Red lead, American	"	.05½@.06
Foreign	"	.07½@.08
Shellac, D. C.	"	.28@.30
Native	"	.16@.17
Turpentine, spirits	gal.	.30@.30½
Ultramarine, best	lb.	.25
Vermilion, Amer. lead	"	.14@.16
Quicksilver, bulk	"	.59
Chinese	"	.80@.90
English, imported	"	.70@.90
Artificial	"	.12@.20
White lead, Am., dry	"	.04½@.04¾
In oil	"	.05½@.06
English, in oil	"	.07½@.08¼
Whiting, common	100 lbs.	.35@.40
Gilders	"	.45@.50
Zinc white, Am. ex. dry	lb.	.03¾@.04½
Foreign, red seal, dry	"	.07⅞@.08⅝
Green seal, dry	"	.08½@.09¾
Pitch—Coal tar	gal.	.08
Plumbago—American, pulverized, f. o. b., Providence, R. I.	sh. ton	25.00@40.00
Lump	"	8.00
German, lump	100 lbs.	.95
Pulverized	lg. ton	16.50
Ceylon, crude	lb.	.01¼@.04½
Pulverized	"	.02@.05
Potash—		
Caustic	"	.04½@.06
Potassium—		
Metallic, in balls (Ger.)	kg.	17.85
Bicarbonate cryst	lb.	.08½
Powdered or gran	"	.12
Bichromate	"	.09¾@.10
Bromide, bulk	"	.44@.45
Carbonate	"	.03@.04
Chromate	"	.35
Cyanide (98@99%)	"	.28
Double manure salts, 48@53% (basis 48%)	100 lbs.	1.03
Muriate, 80@85% (basis 80%)	"	1.78
Permanganate, pure cr.	lb.	.15¼@.15½
Chem. pure	"	.34

	Cust. Meas.	Price.
Potassium—Silicate	lb.	.06
Prussiate, yellow	"	.16@.17
Red	"	.37@.40
Sulphate, 90@95% (basis 90%)	100 lbs	1.99¼
Sulphide, com'l	"	.10
Quartz—(See Silica).		
Rosin—Common	gal.	.10
Best	"	.16
Saltpeter—Crude	lb.	.03¾@.04
Double refined	"	.05@.06
Silica—		
Ground quartz	sh. ton	6.75@8.00
Best	"	12.00
Lump quartz	"	2.50@4.00
Silver—Chloride	oz.	.65
Nitrate	"	.41@.43¾
Oxide	"	.85@1.10
Slate—Flour	sh. ton	7.50
Sodium—Metallic	lb.	.75
Acetate, com'l	"	.03¼
Chem. pure	"	.05¾
Bichromate	"	.07¾@.08
Bisulphite, com'l	"	.01¼@.02¼
Bromide	"	.49@.50
Chlorate, com'l	"	.09¾@.10
Hyposulphite, com'l	100 lbs.	1.60
Nitrite	lb.	.07½@.07¾
Peroxide	"	.45
Silicate, Com'l	"	.01¼@.01½
Sulphate, gran., purif'd.	"	.03
Tungstate, com'l	"	.35
Pure	"	.50
Strontium—Carb., ppt.	"	.13@.14
Nitrate	"	.07½@.07¾
Sulphur—Roll	100 lbs.	2.00
Flour	"	2.20@2.25
Talc—N. C. No. 1	sh. ton	15.00@15.50
No. 2	"	10.00@12.00
N. Y., Fibrous	"	8.00@9.00
French, best	"	20.00
Italian, best	"	20.00
Tin—Chloride	lb.	.11@.13
Crystals	"	.14@.14½
Muriate	"	.06@.08
Oxide, white, ch. pure	"	.30@.32
Uranium—Oxide	"	2.00@3.00
Zinc—Metallic, ch. pure	"	.06¾
Carbonate	"	.13
Chloride	"	.06
Dust	"	.06¾@.08
Sulphate	"	.02@.02¼

THE RARE ELEMENTS.

Prices given are at makers' works in Germany, unless otherwise noted.

	Cust. Meas.	Price.
Barium—Amalgam	grm.	$1.19
Electrol	"	5.71
Beryllium—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	oz.	2.50
Boron—Amorphous, pure	grm.	.19
Crystals, pure	"	1.43
Nitrate (N. Y.)	lb.	1.59
Calcium—Electrol	"	4.28
Cerium—Fused	grm.	2.02
Nitrate (N. Y.)	lb.	28.00
Chromium—Fused	kg.	5.95
Pure powder	"	1.79
Chem. pure cryst	grm.	.19
Cobalt—(98@99%)	kg.	5.35@5.71
Pure	"	30.94
Didymium—Powder	grm.	3.81
Nitrate (N. Y.)	oz.	4.00
Erbium	grm.	3.09
Nitrate (N. Y.)	oz.	3.00
Gallium	grain	9.52
Germanium—Powder	grm.	33.32
Fused	"	35.70
Glucinum—Powder	"	5.95
Crystals	"	9.04
Nitrate (N. Y.)	lb.	2.50
Indium	grm.	4.05
Iridium	"	1.19
Lanthanum—Powder	"	4.28
Electrol, in balls	"	9.04
Nitrate (N. Y.)	oz.	3.50
Lithium	grm.	2.38
Nitrate (N. Y.)	oz.	.60
Molybdenum—Powder	kg.	2.62
Fused, electrol	100 grms.	15.47
Niobium	grm.	3.81
Osmium	"	.95
Palladium	"	.95
Rhodium	"	2.87
Rubidium—Pure	"	4.76
Ruthenium—Pure	"	1.55
Selenium—Com'l powder	kg	26.18
Sublimed powder	"	35.70
Sticks	"	28.56
Silicium—Amorphous	100 grms.	2.87
Crystals, pure	"	7.14
Strontium—Electrol	grm.	6.19
Tantalium—Pure	"	3.57
Tellurium—Ch. p, sticks	100 grms.	11.90
Powder	"	9.52
Thallium	kg.	23.80
Thorium—Metallic	grm.	7.85
Nitrate 49@50% (N. Y.)	lb.	7.50@8.00
Titanium	grm.	.71
Uranium	"	.48
Nitrate (N. Y.)	oz.	.25
Vanadium—Fused	grm.	1.19
Wolfram—Fused	100 grms.	22.80
Powder, 95@98%	kg.	2.38
Chem. pure	"	7.14
Ore, lump	"	47.60
Powdered	"	42.84
Yttrium	grm.	3.33
Nitrate (N. Y.)	oz.	4.00
Zirconium—Com'l	kg.	119.00
Pure	grm.	.71
Nitrate (N. Y.)	oz.	1.00

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DIVIDENDS.

CONSOLIDATED KANSAS CITY SMELTING AND REFINING COMPANY,
100 BROADWAY, N. Y., Nov. 29, 1898.

The Board of Trustees of this Company have this day declared a quarterly dividend of ONE AND ONE-HALF (1½) per cent. on the common stock of the Company for the quarter ending September 30th, 1898, payable December 15th, 1898.

The transfer books will be closed at this office on December 10th, and opened December 16th.

EDWARD BRUSH, Assistant Secretary.

CONSOLIDATED KANSAS CITY SMELTING AND REFINING COMPANY,
100 BROADWAY, N. Y., Nov. 29th, 1898.

The Board of Trustees of this Company have this day declared a quarterly dividend of ONE AND THREE-QUARTERS (1¾) per cent. on the preferred stock of the Company payable January 16th, 1899, for the quarter ending December 31st, 1898.

The transfer books will be closed at this office January 10th, and opened January 17th.

EDWARD BRUSH, Assistant Secretary.

NEW YORK AND HONDURAS ROSARIO MINING COMPANY,
No. 18 BROADWAY, NEW YORK, Dec. 6, 1898.
DIVIDEND NO. 49.

The Trustees of the Company have this day declared a dividend of TEN CENTS per share on its capital stock, payable December 20, 1898. Transfer books will be closed from December 10 to 20, 1898.

S. JACOBY, Treasurer.

THE January 7th issue of the ENGINEERING AND MINING JOURNAL will be the

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